

ESTABLISHED 1825.

EDWIN LEWIS AND SONS,

Patent Tube Works, MONMORE GREEN and Britannia Boiler Tube Works, ETTINGSHALL,
WOLVERHAMPTON.

MANUFACTURERS OF

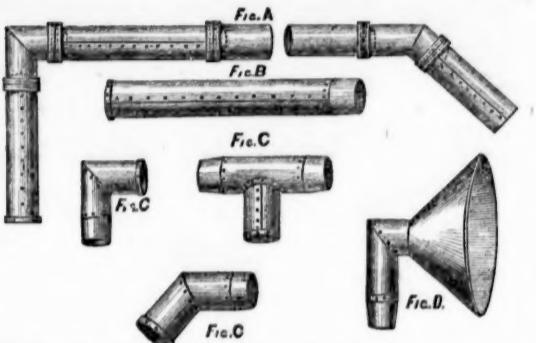
Lapwelded & Butt-welded Wrought-iron, Steel, or Homogeneous Tubes
FOR EVERY

COLLIERY OR MINING PURPOSE.

COLLIERY VENTILATING TUBES.

WILLIAM THOMPSON,

MANUFACTURER OF

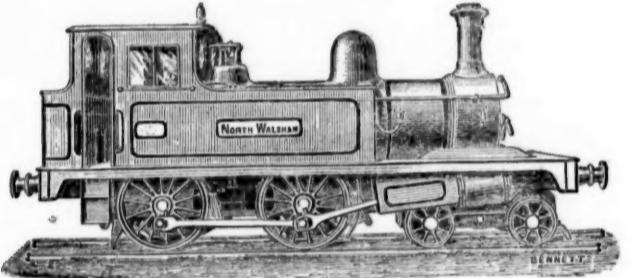


COLLIERY VENTILATION TUBES.

Fig. A.—Shows the tubes adapted for any variation in direction.
Fig. B.—Straight length of tube.
Fig. C.—Different angle bends.
Fig. D.—Is a hopper to receive air at top of shaft.

Highfield Works, Ettingshall, near WOLVERHAMPTON.

ESTABLISHED 1860.

HUDSWELL, CLARKE, AND CO.,
LEEDS.

SOLE MAKERS OF RODGERS' PATENT WROUGHT IRON PULLEYS.

The Only Knapping Motion Stone Breaker
and Ore Crusher.AWARDED THE ONLY SILVER MEDAL FOR MECHANICAL EXHIBITS
AT THE ROYAL CORNWALL POLYTECHNIC SOCIETY,
FALMOUTH, SEPT., 1881.

GUARANTEED to do MORE WORK with less power THAN ANY OTHER MACHINE in the World.

NOTE THIS FACT.

To Mr. Baxter, Leeds.

Cinderford, Feb. 13, 1883.

DEAR SIR.—I am pleased to be able to tell you that the Machine works splendidly. We are breaking 16 trucks a day now and we thought it a good day's work to do 10 a day with the old Machine, so you can see the difference. I had a gentleman looking at it yesterday, and he was surprised to see it work so easily.

Yours truly, E. ORGAN.

The above refers to one of our 16 by 9 Machines we supplied to replace an "Improved Blake" 15 by 9 Machine.



GUARANTEED NO INFRINGEMENT OF ANY OTHER PATENT

AWARDED THE ROYAL MANCHESTER, LIVERPOOL, AND NORTH
LANCASHIRE AGRICULTURAL SOCIETY'S SILVER MEDAL,
8TH OF SEPTEMBER, 1882.

FOR ILLUSTRATED CATALOGUE AND FULL PARTICULARS ADDRESS TO THE PATENTEE AND SOLE MAKERS,

W. H. BAXTER & CO., ALBION STREET, LEEDS,

Will EXHIBIT at the ENGINEERING EXHIBITION at the AGRICULTURAL HALL, LONDON, in JULY, 1883.

THOMAS TURTON AND SONS,

MANUFACTURERS OF

MINING STEEL of every description.

CAST STEEL FOR TOOLS. CHISEL, SHEAR, BLISTER, & SPRING STEEL
MINING TOOLS & FILES of superior quality.EDGE TOOLS, HAMMERS, PICKS, and all kinds of TOOLS for RAILWAYS, ENGINEERS, CONTRACTORS, and PLATELAYERS.
LOCOMOTIVE ENGINE, RAILWAY CARRIAGE and WAGON SPRINGS and BUFFERS.

SHEAF WORKS & SPRING WORKS, SHEFFIELD.

LONDON OFFICES—90, CANNON STREET, E.C.

PARIS DEPOT—12, RUE DES ARCHIVES.

BOSTON, MASS., U.S.—40, KILY STREET.

Registration of New Companies.

The following joint-stock companies have been duly registered:—

THE SOUTH DEVON HYDRO-SANITORIUM AND HOTEL COMPANY (Limited).—Capital 60,000*l.*, in shares of 5*l.* To erect, establish, and maintain such buildings at and near Tynemouth, Devon. The subscribers (who take one share each) are—H. N. Hurt, 10, Cornhill; G. L. Grisza, 20, Grafton-street; C. F. A. Voisey, Broadway Chambers; E. H. Stanley, 10, Cornhill; T. Charlton, 18, Brook-street; H. L. Schmidt, 16, Charles-street; T. L. Fox, 1, Crown-court.

JACKSON AND GRAHAM (Limited).—Capital 160,000*l.*, in shares of 10*l.* To acquire wholly or in part the business of cabinet makers, upholsterers, decorators, &c., as formerly carried on by Jackson and Graham in Oxford-street, W. The subscribers (who take one share each) are—A. Manero, 34, Old Broad-street; W. E. Graham, 47, Elgin Crescent; T. H. Biddle, 68, Finchley New-road; G. J. Davis, 92, New Kent-road; J. J. Cornell, Leytonstone; C. Champ, Highbury; E. J. Bowring, Hulmefield.

THE BEDFORD TOWN AND COUNTY CLUB-HOUSE COMPANY (Limited).—Capital 50,000*l.*, in shares of 10*l.* To provide a club-house and other conveniences for members. The subscribers (who take one share each) are—T. Barnard, Bedford; G. Jones, Bury; K. W. Pearce, Rye Close; F. S. Wigram, Elstow; W. Haliday, Bedford; E. R. Green, Bedford; W. Small, Bedford.

THE NATIONAL BICYCLE AND TRICYCLE MANUFACTURING COMPANY, COVENTRY (Limited).—Capital 50,000*l.*, in shares of 2*l.* To purchase and continue a business established at Coventry. The subscribers (who take one share each) are—F. Schofield, 29, Haverstock-street; C. G. Grayland, 54, Belmont-street; G. O. Hodson, 33, Marylebone-road; J. H. Symonds, 23, Great Coram-street; F. W. Lowe, 92, Mildmay Grove; H. H. Suckling, 5, Metropolitan Chambers; F. Bradfield, General Post Office.

THE PATENT DIAGONAL ROCKING FIRE-BAR COMPANY (Limited).—Capital 50,000*l.*, in shares of 5*l.* To purchase, hire, let, and sell fire-bars, in connection with certain acquired patents. The subscribers (who take one share each) are—E. de Ruten, 16, Newland-street; C. A. Angus, 69, Holland-road; G. Shenton, 5, Belsize Crescent; F. Bracher, 116, London Wall; R. Sanford, 6, Wharton-terrace; W. T. Billington, 310, Fulham-road; J. J. Ball, Isledon-road.

CHURCH SCHOOLS COMPANY (Limited).—Capital 100,000*l.*, in shares of 5*l.* To provide and maintain in England and Wales schools, in conjunction with religious instruction as taught by the Church of England. The subscribers are—W. H. Smith, 3, Grosvenor-place; 200; J. G. Hubbard, 24, Prince's Gate, 200; R. Gregory, 2, Amecourt, 20; W. R. Farquhar, 16, St. James's-street, 200; F. S. Powell, 1, Cambridge-square, 200; C. Burney, Kingston-on-Thames, 20; E. Bayley, St. John's Vicarage, 10; W. Emery, Ely, 20; R. E. Billing, Spitalfields Rectory, 5.

HARVEY AND COMPANY.—Capital 300,000*l.*, in shares of 250*l.* To acquire and continue a general engineer and engine manufacturing business, conducted by a firm bearing the same name. The subscribers are—W. Harvey, Torquay, 34; W. West, Hayle, 40; N. T. West, Hayle, 142; W. J. Rawlings, Hayle, 42; F. Harvey, Hayle, 292; H. N. Harvey, 186, Gresham House, 32; N. Harvey, Penzance, 16.

THE INVESTMENT PUBLISHING COMPANY (Limited).—Capital 5000*l.*, in shares of 10*l.* To acquire and conduct the business of publishers, printers, lithographers and advertising agents, &c. The subscribers (who take one share each) are—J. Head, 9, Seymour-street; C. A. Lane, 32, Keppel-street; E. C. Marks, 30, Dorset-square; T. P. Ochittin, Westminster Palace Hotel; J. P. Prince, Brixton Rise; T. Percy, 17, Cecil-street; E. R. White, 18, Hatherley Grove.

"ASHORE AND Afloat" PUBLISHING COMPANY (Limited).—Capital 20,000*l.*, in shares of 10*l.* To acquire, print, and publish the weekly paper called "Ashore or Afloat." The subscribers (who take one share each) are—H. H. Leverell, 16, St. Martin's-court; W. J. Innes, 219, South Lambeth-road; H. Horn, 11, Camden Gardens; J. T. Carrington, Royal Aquarium; G. Sumner, Hampstead; J. Wheilden, 64, Peckham-grove; H. W. Howse, Streatham; A. Page, 56, Queen Anne-street.

THE WASHINGTON HILL GOLD GRAVEL MINES (Limited).—Capital 100,000*l.*, in shares of 1*l.* To adopt and carry into effect an agreement made between J. H. Thomas, of the one part, and W. Beckett, as trustee for the company, of the other. To acquire by purchase or otherwise, develop, open, explore, and work any land and mines, placers, drifts, lodes, veins, and seams of ore, and mineral deposits in Plumas and Sierra Counties, California, or elsewhere in the United States of America. The subscribers (who take one share each) are—N. Greene, Bartholomew House, merchant; R. Levick, Bartholomew House, merchant; C. A. McBean, Camberwell, gentleman; R. W. Wilson, 30A, Moorgate-street, agent; J. Milne, 37, Walbrook, merchant; P. Pritchard, Palmerston-buildings, merchant. A. Sweeny, 45, Beeston-road, gentleman. The subscribers will appoint the members of the first board; future directors will have to qualify in 300 shares each.

THE BROCKMOOR IRON AND TIN-PLATE WORKS (Limited).—Capital 50,000*l.*, in shares of 10*l.* The business of an ironmaster, miner, smelter, and manufacturer of sheet-iron, steel plates, &c. The subscribers (who take one share each) are—E. Budd, Letherhead; E. F. Bunce, 4, Abchurch-yard; H. S. Budd, Lincoln's Inn; F. Lopes, 14, George-street; L. E. Rickards, 2, Crown-court; J. E. Budd, Letherhead; F. L. Budd, Letherhead.

THE NORTHERN OF EUROPE RAILWAY COMPANY (Limited).—Capital 600,000*l.*, in shares of 5*l.* To acquire concessions and rights for the construction and working of railways in Norway and Sweden, from Lulea to the Ofoten Fiord on the Atlantic Ocean. The subscribers (who take one share each) are—J. G. Wilkinson, 95, Addison-road; E. Fowles, Edgbaston; J. T. Jarvis, 20, Ladbrooke square; W. M. Wilkinson, 44, Lincoln's Inn-fields; A. Longdon, Denmark Hill; S. G. Williams, Malvern; A. W. Sharp, 5, Gloucester-street.

BLUMBERG AND COMPANY (Limited).—Capital 200,000*l.*, in shares of 10*l.* To acquire and carry on the business of foreign warehousemen, manufacturers, merchants, and importers of fancy goods, &c. The subscribers (who take one share each) are—J. C. Wakefield, 25, Holland Villas-road; V. L. A. Blumberg, 2, Cannon-street; C. N. Blumberg, 2, Cannon-street; J. Heather, 17, Paternoster-row; C. Hoar, 2, Cannon-street; R. Spence, 5, Love-lane; F. T. Isett, 7, Friday-street.

SAMUEL BAXTER AND SONS (Limited).—Capital 10,000*l.*, in shares of 1*l.* To acquire and carry on at Paternoster-row a business of publishers, booksellers, printers, &c. The subscribers (who take one share each) are—R. Baxter, 15, Paternoster-row; F. T. Hall, Eshier; C. Burdin, 3, Ashmount-road; E. L. Baxter, Crouch End; W. H. Phillips, 24, Carlton-terrace; W. J. Crutch, 85, Petherton-road; A. Desange, 13, Thomas-street.

THE FLOATING ELEVATOR COMPANY (Limited).—Capital 25,000*l.*, in shares of 10*l.* The purchasing and working of a patented method of elevating grain, &c., of which William Southern Brice is the patentee. The subscribers (who take one share each) are—L. Bennett, Liverpool; W. D. Mack, Liverpool; W. J. Mullins, Liverpool; E. R. Peel, Birkenhead; C. Archer, Bootle; H. Wilding, Garston; S. Williamson, Liverpool.

MILLER'S FOOD PRESERVING COMPANY (Limited).—Capital 12,000*l.*, in shares of 2*l.* To make, preserve, and sell consolidated and other soups and preparations of meat, &c. The subscribers are—C. Mumby, Gosport, 25; J. W. M. Miller, Southsea, 25; W. H. Fry, Gosport, 25; W. Garnet, Hambledon, 25; T. H. Seture, Southsea, 1; H. Parris, Southsea, 1; J. Woodward, Langport, 25.

THE ICELAND TRADING AND NAVIGATION COMPANY (Limited).—Capital 50,000*l.*, in shares of 10*l.* A general mercantile and ship owner's business in all branches. The subscribers (who take one share each) are—E. Carr, 5, Grocers' Hall-court; T. G. Paterson, Edinburgh; A. Menzies, Edinburgh; J. Thomson, Edinburgh; T. Carr, 20, Lawrence-lane; T. Chitty, 5, Lawrence-lane; C. E. Paterson, Edinburgh.

THE CROOKBOTTOM MANUFACTURING COMPANY (Limited).—Capital 30,000*l.*, in shares of 5*l.* To carry on at Stalybridge

elsewhere the businesses of spinners, doublers, weavers, or manufacturers of goods from cotton, &c. The subscribers are—J. Higinbotham, Stalybridge, 50; W. E. Hyde, Stalybridge, 100; N. Ives, Stalybridge, 125; J. Rowles, Stalybridge, 20; L. Warhurst, Stalybridge, 20; J. Hague, Stalybridge, 20; J. Bentley, Stalybridge, 10.

THE EASTBOURNE PHOTOGRAPHIC AND FINE ARTS COMPANY (Limited).—Capital 5000*l.*, in shares of 1*l.* To establish photographic galleries, and to carry on the business in all branches of photographers at Eastbourne. The subscribers are—A. S. H. Jones, 47, Mark-lane, 200; F. R. Chapman, Hackney, 200; P. Collingwood, Lewisham, 15; W. H. Dunn, 57, Bishopsgate-street Within, 20; H. D. Timewell, 8, Sackville-street, 200; H. J. Coish, 196, Great College-street, 1; F. W. Vince, Tottenham, 1.

THE KNIGHTS OF ST. JOHN TUG COMPANY (Limited).—Capital 12,800*l.*, in shares of 200*l.* A ship and tug owner's business in all branches. The subscribers are—J. E. Purdingley, Liverpool, 1; E. M. Tucker, Liverpool, 1; G. J. Rudolf, Liverpool, 3; C. M. Crank, Liverpool, 2; J. Tunnicliffe, Liverpool, 2; M. Massey, Waterloo, 3; O. F. Hall, Bootle, 2.

THE UNIVERSAL PORTLAND CEMENT COMPANY (Limited).—Capital 20,000*l.*, in shares of 1*l.* The business of cement, concrete, lime, and brick manufacturers in all their respective branches. The subscribers (who take one share each) are—A. M. Hurst, 334, Romford-road; S. Bracegirdle, Manchester; W. Muir, Chatham; R. W. Hopkins, Longsight; H. Peplow, Hulme; F. MacCrimmon, Manchester; J. J. Phillips, Manchester.

ASBESTOS, AND ITS APPLICATION.

Although asbestos is by no means a rare mineral, it is only the long fibrous variety that is of any great commercial value, since the price at which the short stapled stony variety can be sold for use in certain kind of gas fires is so small that it will seldom repay the cost of carriage. At present the trade in asbestos products, so far as this country is concerned, is to a great extent in the hands of the United Asbestos Company of London, and whether for steam packing, fire-proof paint, or other purposes, it is without doubt in greater general favour now than at any previous period. Until comparatively recently the company in question manufactured in Rome, Turin, and Glasgow, but they have now concentrated their works at Harefield, and by the exclusive use of water-power and special patented machinery they have been enabled to effect considerable economy without in any degree lowering the quality of the products, and they are constantly adapting the material to new requirements. The company's asbestos fire-proof paints were not long since very fully referred to in the *Mining Journal*, and it is remarked that, although barely 12 months have elapsed since these were brought to the notice of the public, the success of this branch of the company's business has far exceeded their most sanguine anticipations, and they are now receiving enquiries and orders for the paints from all parts of the world. This success can only be attributed to the genuine character of the paint, as testified by the numerous public demonstrations they have made of its great fire-resisting qualities before the Lord Mayor of London, the Metropolitan Board of Works, the Lord Provost of Glasgow, the Mayors, Corporations, and Fire Brigades of Manchester, Liverpool, Birmingham, and elsewhere—tests which have in no single instance failed. It appears that the company use only the pure asbestos procured from their own mines in the Val Tellina and Val d'Aosta districts of Northern Italy, and employ only mechanical means in their preparation.

For steam joints, cylinder covers, manhole joints, and the like, asbestos millboard is now generally considered to be the cleanest, most durable, and economical packing in existence. Compared with rubber it is much cheaper in first cost by reason of its lightness, and it lasts very much longer. With a little care a joint of this material may be used again and again, and instances have come to our notice where, notwithstanding that the joints have been repeatedly broken, the millboard has lasted an incredible length of time. The best and only true test is the actual wearing properties of the material itself, and the appearance of the face of the metal in contact after a few months' use. It is said that the so-called Canadian asbestos, which has a white pure appearance, after a short time honeycombs or eats away the face of the joint, and for this reason numerous instances have come under notice where all asbestos millboard, good as well as bad, has been condemned, and there has been great difficulty in overcoming the prejudice thus created, and in getting pure and harmless material introduced. Whenever the pure asbestos has been adopted, however, it has given general and continued satisfaction. For a considerable time Italian asbestos has been recognised as possessing natural qualities far superior to any other material for making a high-class, durable, and really economical packing for glands. Owing, however, to the difficulties experienced in working this mineral fibre into a clean pure thread or yarn, no packing proved altogether satisfactory. Recently, however, as the result of a long series of experiments, the United Asbestos Company have succeeded in overcoming all difficulties, and the product is already being extensively adopted owing to its great durability and reliability. This packing is composed of fine spun Italian asbestos thread; it can be supplied to any size required, from $\frac{1}{8}$ to $2\frac{1}{2}$ in. in diameter. In ordering, a size 1-16th of an inch larger than the space in the stuffing-box to be filled should be given. The asbestos packing will, however, be found good enough for the majority of purposes. This consists of loose fibre thoroughly cleaned and covered with a braiding of cotton to bind it together until it gets bedded to the rod. This is a very cheap and durable packing, and has been known to run over 20,000 miles in a high-pressure locomotive without repacking. Flat packing is now also in request for making the joints of manhole doors. It can be used a great number of times if a little plumbago or powdered blacklead be applied when replacing the cover, and makes a very economical packing; it is made in any width from $\frac{1}{4}$ in., and is from $\frac{1}{4}$ to $\frac{1}{2}$ in. thick.

Asbestos covered wires for electrical purposes appear to be a new application of the mineral, and the company have given especial attention to this matter. It is mentioned that in all incandescent light installations all kinds of risks are greatly diminished if fire-proof covered wires are used, and the principal electric light companies now use wires which are practically fire-proof, but unfortunately not water-proof, as the covering usually employed is very absorbent. To overcome this important defect they use in combination with asbestos a composition which is perfectly water-proof, so that although the wall may be wet the insulation of the wire is not affected, and at the same time the wire may be made red-hot in the covering without the latter being destroyed. Of late years much attention has been given by users of steam power to economising fuel by applying non-conducting coverings to boilers and steam pipes to prevent loss of heat by radiation. Now, asbestos is just the material to supply the want here felt, for being unburnable it is not affected by the heat of the surface to which it is applied, and when mixed with suitable cement it does not crack or scale off, but when dry is as hard as stone, and in actual use has proved very successful. The asbestos fire-proof paints have already been fully referred to. Being composed mainly of asbestos, which is a pure, insoluble, fire and acid-resisting product, they are fire-resistant, impervious to acid, gases, or foul atmospheres, non-infectious, and very durable. The use of these paints is, therefore, to be advocated for all situations exposed to steam, gas laden atmospheres, &c. They are undoubtedly the best that can be used for railway works, gas works, &c.; and although fires at mines are not very common it would be decidedly preferable to have all wood-work rendered fire-proof so as to guard against the possibility of accident. The United Asbestos Company have certainly secured a reputation for the mineral which it did not previously enjoy, and have at the same time put materials in the market which are well worthy of consideration.

DENVER GOLD.—The chairmanship has been accepted by Mr. F. A. Sands, Mr. F. F. Powell having been compelled to resign through indisposition. Messrs. Rickard Brothers have been appointed managers of the mines. The directors regret that in consequence of the low-grade ore which has been opened up they have hitherto been unable to announce profits. Mr. Craven (the mine superin-

tendent), however, in his last report, dated June 20, predicts better returns almost immediately, and the directors, therefore, hope that before very long they will be in a position to communicate important results to the shareholders.

Meetings of Public Companies.

THE RICHMOND CONSOLIDATED MINING COMPANY.

The ordinary general meeting of shareholders was held at the Cannon-street Hotel, on Tuesday, Mr. GEORGE HOPKINS, C.E. (Chairman of the company) presiding.

Mr. HUBERT AKERS (the secretary) read the notice calling the meeting; the report and accounts were taken as read.

The CHAIRMAN said, gentlemen, before I proceed to make any remarks you will allow me to explain the reason why the meeting has not been called earlier; it is because just at this time of the year, when Parliament is sitting, it is very inconvenient for me to fix a day on which I am certain that I shall be able to attend. The accounts have been ready for sometime, but the meeting has been postponed from week to week until I could see my way when I should have the pleasure of meeting you. I am afraid that owing to the postponement of the meeting we have to regret the absence of some of our directors to-day. Mr. Schultz has been wanting to go to Germany for some time, but he has put it off to accommodate me until he could not do it any longer. Mr. Bower is detained in Leeds on important business, and I have a letter from him this morning expressing regret that he is unable to attend; and the Hon. Mr. Stewart is also away, and is unable to be present. Now, gentlemen, the year which has just ended, or rather which ended on Feb. 28, and the accounts for which are now before you, has been predominantly a year of exploration. During the whole of the year we have been doing a large amount of dead work, exploring the mine both in the upper and lower levels, with the hope and expectation of finding some fresh bodies of ore; but whilst that has been, to a great extent, our work, it has not been our only work, because we, or rather the management at Eureka, have been able throughout the whole of the year to keep at least one furnace running, and smelting has never ceased, neither has the refining. We were very much afraid we should have been obliged to have stopped the smelting, and also the exploration at one time, because the main shaft wanted new timbering to a considerable extent, and the air-compressor, which had been at work for some time, was out of order, and we were afraid that these repairs would oblige us to stop. However, they did not. Smelting operations have been carried on continuously, and we think that reflect considerable credit on the management out there. (Hear, hear.) You will see that during the year we have taken from the mine 25,474 tons of ore, which is nearly as possible 500 tons per week. That is not a large amount compared with former years, of course, but still it is a large amount to take out of the mine during the whole year—at the average rate of 500 tons per week. The total production of the year is 14,904 tons of gold, 508,352 tons of silver, and 4227 tons of lead. The cost of mining has been increased—from \$10*l.* per ton to \$13 per ton. This, of course, is easily explainable by the circumstance that we have done an unusual amount of dead work, and at the same time we have taken a much smaller quantity of ore from the mine. These two circumstances together combine to increase the cost per ton of mining. But whilst the mining expenses have increased the smelting expenses fortunately have decreased almost to the same extent; that is to say, the smelting expenses have decreased from \$3.51 last year to \$1.61; so that if you take the mining and smelting together the expenses are practically the same, there is a difference of only one-sixth of a dollar per ton. Whilst our own reserves of ore have been so short we have been looking round in different directions to ascertain where we can obtain ore, and we have purchased during the year a much larger amount of ore than we have generally done. By reference to the accounts you will see that this year we have paid for purchased ores 24,000*l.*, as against 13,000*l.* last year, or nearly double. We have also been looking for other mines outside of the Richmond, and, as opportunities have occurred, we have purchased small properties, one of which I mentioned at the last meeting—the Hoosac. That property we purchased for a very small sum. I forgot what it was for the moment. —The SECRETARY: 200*l.*

The CHAIRMAN: Yes, 200*l.* I think I mentioned last year that the slag which we bought with the mine had more than repaid the purchase money, so practically we get the mine for nothing. (Hear, hear.) We have spent a little money in exploration upon the property, which has not yet brought forth much, but even now we are within the amount which we gave for the property. Some few months ago an opportunity offered of purchasing the Williamsburg Mine. That mine is about two miles from the Richmond. It has been bought for not a large sum of money—\$300*l.* We are exploring and developing, and the prospects there are looking very well indeed. We have done but very little work on that property before we found ore, and now we have got a fine body of ore, very rich in lead, assaying as much as 80 per cent. of lead. There is not much silver in it at present; but we expect as we go down the quantity of silver will increase. (Hear, hear.) That discovery of lead in this property has come very opportunely, because during nearly the whole of last year the Richmond ore has fallen off very notably in the percentage of lead. At one time the percentage of lead got as low as 12 per cent.; and, as many of you know, when the percentage of lead is so low it is very difficult to get good smelting. Unless you have a certain quantity of lead it is impossible to get the gold and silver out of the ore; in order to do that we have been obliged at times to add litharge; so as to get good smelting. I do not know any period of our existence when the smelting losses have been so low as at present. I think they are not more than 5 per cent. according to the last return. (Hear, hear.) We cannot attribute that small loss simply to the lead and litharge. I think in fairness you must put a good deal down to improved smelting, for of course our agents and smelters out there have now acquired considerable proficiency in this art, and I think our smelting returns compare very favourably with any other mine. (Hear, hear.) As to the refinery I have not much to say about that. It has been at work very satisfactorily the whole year, and I think if I remember rightly the expenses have decreased. Yes; there is a slight decrease from \$14.27 to \$13.80. The reduction is small, but so far it is satisfactory. There is a decrease in our general expenses, and what will be very satisfactory to all of you, there is a very large decrease in the "extraordinary" expenditure at the mine, by which we mean those expenses in connection with law suits and the defence of the property, which last year cost us no less than \$0,915*l.*, but this year only \$132*l.* (Cheers.) Whilst on this subject perhaps it will be interesting to the shareholders if I mention a few words about the Albion Company, which gave us so much trouble; they have come to grief. I do not know that to us is any satisfaction. They have done a good deal towards lessening our profits, and they have done no good to themselves. I believe at this moment the Eureka Company, or some persons interested in the Eureka Company, are working the mine, but under what arrangement I do not know, and I cannot tell you. Our appeal case is just where it was last year, and I dare say it will be much in the same position 12 months hence—that is, waiting to obtain a hearing. There is such a press of business at Washington that it is impossible to get any appeal case on for something like two or three years. Now you have all had the accounts before you some time, so I do not propose to weary you with them to-day. Our capital account remains where it did—at 270,000*l.*—and here let me say that you, the shareholders are now, and have been for some time, benefiting by the course of action suggested by the directors, and which you all approved—that of keeping the capital down to the smallest possible amount by paying all the improvements which properly belonged to capital out of the revenue, and by paying off the debentures, and by paying all the extra expenditure to which I have alluded just now, and so far as the capital account is concerned I can not possibly be in a better position. (Cheers.) The mining profit for the year is \$2,180*l.* Now, that is a small amount as compared with former years, but I am afraid the Richmond shareholders have been, perhaps, I was going to say, spoilt by too much prosperity, but I do not know why I should say that, because I think we have worked hard for that prosperity, and we are entitled to it. (Hear, hear.) But of course in comparing the amount with former amounts it seems small; but as it is we have been enabled to pay you a 15 per cent. dividend. As a matter of fact we have earned 20 per cent., but you kindly allowed us to take one of the dividends to pay the amount which we had agreed to pay the Eureka Company in settlement of claims. The London expenses are a trifles, except income tax, which is something more. Of course that is not exceptional to us, because I have no doubt you have all had the benefit of paying 6*l.* instead of 5*l.* (A laugh.) Of course the income tax is based upon the average of the preceding three years, when our profits were large. The result of the year's working, as you will see by the accounts, is that, after paying the dividends and other charges set forth, we had on Feb. 28 a balance in hand of 14,478*l.* 9s. 9d. Now, throughout all last year, and up to the present time, we have been paying all the expenses of dead work, maintenance of machinery, maintenance of property, and expenses of every description out of revenue. We have the 75,000*l.* of reserve intact. (Cheers.) That amount we set aside in our most prosperous days for several purposes—for working capital, for contingencies, for equalisation of dividends, for dead work, and for repairs of machinery; because we all foresaw that the time might come when it would be necessary to relieve revenue a little of the heavy expenses of exploration. You see we have this to encounter—that whilst we are taking out less ore and our profits are much less than usual, still, we are called upon to do a much heavier amount of dead work, and make much larger expenditure upon the dead work. (Hear, hear.) It will be for the directors to consider, I think, how far some portion, at least, of the dead work should be paid out for the reserve fund. (Hear, hear.) The reserve fund was created for the purpose. I do not see myself why some of the exploration and dead work should not be paid for out of it. (Hear, hear.) I do not mean to say that we shall do it; but I think it is a question which we may very fairly take into consideration. I may mention that we are still going on at present much the same as we have been all through the year. We are running one furnace, and when I say one furnace I mean you only get the returns published of our furnace; but, as a matter of fact, we are running two furnaces—one which we call the general furnace, smelting ore, and the other the furnace working in connection with the refining works upon the dross and slag, and poor ores. So it is not strictly right to say we are running only one furnace, because two furnaces have been running almost continuously throughout the year. We are still paying for a very large amount of dead work every month, a very handsome profit. (Cheers.) As regards developments, of course we all watch them anxiously from week to week. At times we are led to expect that we have got our long-awaited prize. We had a telegram last week which looked very like it, but the directors decided not to publish it, because of the last few words in it. It was to this effect, that we had struck a large cave on the 300 level with some ore in the bottom by the 400 level, and then it goes on to say—and these are the qualifying words:—"The drift below negatives the expectation of a large body." Well, that may be so; we may not get a large body particularly in the direction of that drift, but it is very satisfactory to find that they have struck into one of these caves in which, in times gone by, we have found so much ore. Now, in this cave there is some ore at the bottom. That is how

it always happens in these caves. We would find ore in the bottom of the cave, and follow that ore down. So you see, gentlemen, that whilst the greater part of our explorations are in the deep levels, for there it is where our hopes centre, particularly on the 1050 and 900 levels, there it is we look anxiously for development, whilst we are working there we are not neglecting the upper levels, and, as you will see by the telegram, the work in the upper levels is productive of good results. (Hear, hear.) In the lower levels we have followed a body of ore from the 600 down to the 900—not a large body, but "large" is a comparative word. We are taking out, bear in mind, 500 tons of ore every week. That is not large compared with the enormous bodies we had some years ago. On this subject I will read a few words from Mr. Probert's letter of June 21, wherein speaking of the lower levels he says that "the 1050 is our hope, and so long as the fissure down there continues open we have every encouragement to go on exploring. The ground we are now in is perfectly dry, and connection having been made with the 900 above, the air is good, and several cross-outs and drifts may be run simultaneously without inconvenience to the men." You will understand that better by referring to our report. In the top paragraph on page 3 we say:—

"The exploratory work in this level is slow and expensive on account of the imperfect ventilation; a rise is now being put up from the 1050 to the 900 to avoid this." It is to that particular "rise" which Mr. Probert refers to as having been finished, and the difficulty of the ventilation having been got over. Of course, where the ventilation is bad work must necessarily be slow and expensive. He goes on to speak about the percentage of lead. I have already alluded to this—"Last month the average of the lead was 8*l.* per cent., which was increased to 12 per cent. from outside ore, and to 20 per cent. with litharge, without the aid of which the smelting loss would have been dangerously high. The Williamsburg has furnished some very fine lead ore, although the average in silver is low. We have had hauled about 100 tons, and the ore shoot promises well for several hundreds of tons more. Outside ores are coming in pretty freely, but we are forced to pay such a high price that the profit on smelting them is insignificant." The fact is, that having purchased outside ores, we have taught other people, our neighbours, the value of them, and they are very sharp competitors with us in the market, and, of course, where there is competition the price is run up. Now I do not know that I need detain you much longer. We have stated in the report about all that we can say, we have indulged in no prophecy, and I do not like to do it, and I think you will give us credit for saying that we never have done so. Hope we may indulge in as much as we like, but hope is not worth much unless accompanied by perseverance. I think we have but one course before us which is to follow up and develop our mine, and see if we can find those large bodies of ore which everyone who has seen the property says they are quite sure exist. I can only ask you not to be disheartened at not having come across further large ore bodies at present. Whether they exist, or whether they do not, is more than we can say, all we can do is thoroughly to prove the mine in the lower depths, and ascertain whether the ore bodies exist or whether they do not. Hitherto we have done it in a way which you have felt the least, that is by expenditure out of revenue. I think we may still continue to do that, although I do not know whether it is quite fair that we should tax the revenue, which means the shareholders' dividends, with all the expenses of exploration and dead work. (Hear, hear.) I mentioned that we have a reserve fund which we set by, amongst other purposes, for this express purpose of opening up the mine, and the directors will carefully consider, in your interests, whether whilst these exceptionally heavy charges for dead work are being made, that reserve fund ought not now to bear, at all events, a proper proportion of these expenses. (Hear, hear.) Before I sit down I will say, as in times gone by, so at the present, we are under very great obligations to Mr. Probert. He has made a great many reductions, and while your returns are low I wish you to understand that our expenses are low also. I believe now we are working in a very economical manner; in fact, it has only been by reducing expenses in every direction consistent with good work that we have been enabled to pay you the dividends we have done; and I think that it is only right and just to Mr. Probert and the management out there to say that during the whole of this last year, when it is well known that our reserves of ore have been very small, the management and conduct of the works have been carried on most economically. (Cheers.) With these remarks, gentlemen, I beg to move the reception and adoption of the report and accounts.

Mr. BENJAMIN BRIGHTON (the Deputy Chairman) seconded the motion.

The CHAIRMAN: The secretary suggests that I might as well read the cable which has come to hand to-day, it is our usual weekly cablegram. It is:—

Mr. F. LANE: And the quantity, Mr. Chairman? —The CHAIRMAN: 275 tons of ore; 4 tons of bullion. You will find that works out at a little over \$54 per ton.

Mr. LANE: Is it not a fact that in the past five months the percentage has been very much higher than in the previous five months? —The CHAIRMAN: The yield per ton has been much higher.

Mr. LANE: And the grade of ore also? —The CHAIRMAN: Yes.

Mr. LANE: Then, I suppose we may expect a considerable increase of the dividend?

The CHAIRMAN: I did not say we were going to do that, but that we would consider it.

Mr. MOYLE: About four years ago I recollect that an important question arose as to whether we should set aside a portion of the profits year by year to form a reserve fund. I understand that there is a reserve fund amounting now to about 75,000*l.*, but I have not been able to gather from the paper sent to the shareholders what this reserve fund is invested in, and I see in one of the abstracts of the statement of accounts sent round to the shareholders—No. 4 abstract—among the liabilities and surplus of this company "to reserve for contingencies and a working capital, 7,000*l.*" I gather from that, that the reserve has been laid out, as it were, on the mine itself; otherwise, I am unable to understand what is on the liability side of the balance-sheet. It is more a matter for business gentlemen, but I do not clearly myself understand it. No doubt it is perfectly clear.

The CHAIRMAN: Yes. If you look at the opposite side of the accounts—the assets—you will see there that we have assets to the extent of 90,737*l.* You see that we have 655 tons of lead in stock at Eureka, worth \$5,85*l.*, and other produce awaiting shipment. You see our reserve fund is locked up in our business, it is in our lead and in our bullion.

Mr. MOYLE: That is what I was anxious to understand—whether the reserve

to wait for months. What we have to do is to stick to our property, and at the present price I hope the shareholders will do so, for I believe that before long they will find that it will have largely increased in value. (Cheers.)

The CHAIRMAN: Gentlemen, there is no doubt that what Mr. Heiron says is very true. We had this Albion property pressed upon us very much; not from one source, but from several. The price which was pressed upon myself individually was 120,000*l.*; but they were good enough to say that they did not want the cash, they would be content to take Richmond shares. (Laughter.) Well, as Richmond shares at that time were at about 10*l.* I did not see my way to come and advise you to give about a quarter of a million sterling for a mine which we are led to believe belongs to us anyhow. (Cheers.) It having been pressed upon us in so many directions—some through myself and some through my friend Mr. Broughton—it occurred to me that there must be some reason for their pressing it so upon us, and the result has shown that they had very good reason indeed. We adopt the policy laid down by Mr. Heiron. When a reasonably promising property offers at a moderate price then we buy it (Hear, hear)—but at very different figures to that at which the Albion was offered to us. But I wish to say this—that whilst we are picking up these little properties here and there around us, I do not want our shareholders to run away with the idea that we think the Richmond Mine is worked out—(cheers)—because we believe nothing of the sort. (Cheers.) We only think it is a discreet and a good policy to purchase these little outside properties as they offer. There are several which I could name, and which, perhaps, other gentlemen could name; but we do not want to purchase a lot of properties which will be of no use to us. (Hear, hear.) We have a magnificent establishment both for smelting purposes and for refining purposes, and if we cannot get sufficient ore out of the Richmond Mine proper we must look for it from other mines in the district. (Cheers.) There are plenty of other mines; some of them, no doubt, good; but it requires great care and caution in purchasing any new properties. (Hear, hear.)

The resolution for the adoption of the report and accounts was then put and carried unanimously.

The CHAIRMAN: The next business on the agenda, gentlemen, is to re-elect as a director my friend Mr. Broughton. Now, you have known Mr. Broughton yourselves—I was going to say as long as I have known him, but that is not quite so—but you have known him as long as you have known me, at all events. (Cheers.) Mr. Broughton is a thorough man of business; he looks after your interests, and I will tell you a secret now which he would not like to tell you himself, that from first to last—and Mr. Broughton has been with us for ten years—I believe, from the date he entered the company to the present moment, he has never sold a single share. Is that so, Mr. Broughton?—Mr. BROUGHTON: That is so.

The CHAIRMAN: That will show you what confidence he has in the concern. (Hear, hear.) I am not going to trespass upon you again, because I am quite sure you will re-elect Mr. Broughton with acclamation. All I have to do is to propose his re-election, which I do with very much pleasure. Will any gentleman second that?—Mr. HEIRON: I have great pleasure in seconding that. —The motion was put and carried.

Mr. BROUGHTON: Gentlemen, my view of a director's duties and his position is that he stands in the position of a trustee for the whole body of shareholders. (Hear, hear.) Now, I have no doubt that if I had felt disposed to give way to temptation I could have made many, many thousands of pounds from the information which I have had the opportunity of obtaining; but I have always looked upon it, as I say, that a director stands in the position of a trustee, and that it is not only dishonourable but dishonest for a director to speculate in shares—that is the feeling by which I have always been animated in that respect. Well, now, I have to thank the Chairman and also Mr. Helton for their complimentary remarks in regard to me, and I have to thank you, gentlemen, for your renewed mark of confidence in re-electing me a member of the board; and I can only say, further, that in the future, as in the past, if I can do anything to promote the interests of the company it will always be my endeavour to do so. (Cheers.)

The CHAIRMAN: The next duty I have, gentlemen, is to propose the re-election of Mr. Schultz as a director. As I explained before, Mr. Schultz was obliged to go to Germany. He had put off his visit to suit me until he could not put it off any longer. Gentlemen, I have much pleasure in proposing that Mr. Schultz be re-elected a director.—Mr. BROUGHTON: I have great pleasure in seconding the re-election of Mr. Schultz.—The proposition was carried.

The CHAIRMAN: In Mr. Schultz's absence I beg to thank you on his behalf for re-electing him. The next business, gentlemen, is the re-election of the auditors. That matter rests entirely with the shareholders. Perhaps some one will kindly propose their re-election?

Mr. HEIRON: Who are they? I suppose we shall find them at the bottom of the sheet.—The CHAIRMAN: Mr. James Fraser and Mr. George Broom. They have been our auditors for a good many years, and they look pretty sharp after the interests of the company. If we were to let them have their own way I do not know that they would let us have any dividend at all. They look after posterity so much. (Laughter.)

Mr. HEIRON: If that were so I would not propose their re-election; but I think they have too much common sense to deprive us of our dividend. I beg to propose their re-election.—Mr. JOHN ELLIOT: I second that.

The names of the auditors were submitted separately, and they were each re-elected.

The CHAIRMAN: That, gentlemen, concludes the business of the meeting, and I am very much obliged to you for attending to-day.

Mr. BROUGHTON: I have very great pleasure in proposing a vote of thanks to our Chairman for the admirable way in which he has conducted the business to-day, and to the directors for the very satisfactory manner in which our affairs have been conducted.

Mr. HART: I have much pleasure in seconding the proposition; and, as the question of dividend is very important to us, I take it from what the Chairman has said that we are paying a large amount out of revenue for dead work, and that we are making considerable profits besides, and I take it that in the course of the next month or so we may expect the dividend of 5*l.* per share which has been paid for some time.

The motion was carried with acclamation.

The CHAIRMAN: Gentlemen, I am very much obliged to you, and I must assure you that you include in the vote of thanks the rest of the directors. ("Certainly.") I will now propose that the thanks of this meeting be given to Mr. Probert for the skill and energy which he has displayed in the management of this company's property during the last six months. (Cheers.) This time of "exploration" is a very anxious period for him. It is disappointing to him, after he has laid out his particular plans for certain drifts in one direction, and rises in another direction, not to meet with the ore bodies. Still he writes in the most satisfactory terms. He says we must push on—we must not leave any part of the mine unexplored—and you may depend upon it that so long as we have him there your future and present will be looked after, and that if there are ore bodies in the Richmond ground sooner or later he will find them. (Hear, hear.) I think we owe it to him to give him a most cordial vote of thanks for his attention to the affairs of the company. (Cheers.)

Mr. ELLIOT: I beg to second that, and I think at no time is it so pressing that a vote of that kind should be passed as in a time of difficulty, when the energies of those who have the interests of the company at heart are called for more than ever. (Cheers.) I think there is an especial reason why Mr. Probert should be thanked, and that is that the Richmond Mine has been kept up greatly during this time of depression through the establishment of the refining works, for which Mr. Probert was so much assailed some time back. Those refining works have been the salvation of the company, and they will bring you in considerable business even if the Richmond ores should fail. I know when Mr. Probert first brought the project to my notice I was so convinced with the arguments he adduced that I supported him strenuously, and it is a great satisfaction to me to see the success they have met with. I am quite sure we shall all fully rely upon Mr. Probert's redoubled energies to bring the company to the success he so earnestly desires for it, and I am sure he will feel pleased specially now, and I have great pleasure in seconding it. (Cheers.)

Mr. HEIRON: You include the officers in that I suppose?—The CHAIRMAN: Yes please.—The meeting then closed.

WHEAL CREBOR MINE.

The four-monthly meeting of shareholders was held at the offices of the company, Gracechurch-street, on Tuesday, July 17.

Mr. J. Y. WATSON in the chair.

Mr. C. B. PARRY (the secretary) read the notice calling the meeting.

The CHAIRMAN said—The accounts to be presented to you to-day show sales of copper ore for four months (812 tons), 3213*l.* 13*s.*; mundic, 237*l.* 12*s.* 10*d.*; interests and discounts, 18*l.* 18*s.*; against this we have this time to charge five months' costs—viz., labour, 1887*l.* 14*s.*; merchants, 428*l.* 8*s.* 8*d.*; land and water rent, 54*l.* 0*s.* 2*d.*; lords' and quay dues, 239*l.* 5*s.* 4*d.*; new shaft account, 260*l.* 3*s.* 4*d.*; total, 2967*l.* 11*s.* 6*d.*, thus showing a profit, including payment of 13th month of 50*l.* 11*s.* 5*d.* If we take four months' costs against four months' returns the profit is 1034*l.* 2*s.* 1*d.* You are aware that we have been putting by 50*l.* a month towards this 13th month month, and that at the last meeting we had 400*l.* to the credit of it, and applying this in the accounts against the 13th month, which was 511*l.*, we again. At the last meeting we carried over an undivided profit of 477*l.* 6*s.* 11*d.*, now profit of 902*l.* 11*s.* 5*d.*, and now commence by putting by 50*l.* a month which added to the present profit of 902*l.* 11*s.* 5*d.* makes 1379*l.* 18*s.* 4*d.* to divide.

The hand is 122*l.* 1*s.* 9*d.*, with ore bills to be received shortly for 150*l.* 19*s.* 5*d.* So: making assets over liabilities of 269*l.* 2*s.* There is not a single liability on the mine beyond the lord's dues on last sales and the current monthly cost; and the share ledger has been audited by Mr. Ashmead, the chartered accountant, and certified to be strictly correct. At our meeting four months' ago it was generally deplored that no discoveries had been made in the bottom level of the mine, and that, consequently, we were working away our reserves, but soon afterwards ores were found in the 132, and have contained about 10 fms.; 7 fms., worth 10 tons, and is now worth 35*l.* per fm. This is the richest ore yet found in the mine, and what is also most important is richest in the bottom of the level, arguing well for the next level, towards which the shaft is now down 14*l* fms., but nearly 30 fms. may possibly have to be driven to reach the ore ground, and this will occupy some months in the ordinary way of driving. The question therefore, as the purser thinks, for the shareholders to consider is whether they will be content with a dividend of 2*s.* per share, and erect boring-machinery at a cost of not less than 50*l.* or 100*l.* This, when at work, would do the distance in about half the time that it would take under the ordinary way, but, at the same time, we must also consider that it might take a month or two to provide and erect a water-wheel to get the borers to work, and a good distance towards the ore may then have been driven without borers. There is another reason why we think the boring question should be deferred. The 48*l* is near the boundary, and we must apply for a lease of the eastern ground, and the shareholders may have no lease for the whole mine, and thus relieve me of a great personal responsibility as sole lessor. In conclusion, the Chairman formally moved the adoption of the report and accounts.

A short discussion ensued, the chief point of discussion being whether the dividend should be 2*s.* 6*d.* as suggested by the committee, or 2*s.* as two or three of the shareholders thought it should be.

The CHAIRMAN, Mr. SCHOFIELD, Mr. ALFRED THOMAS, and the great majority

considered that the prudent course would be to pay 2*s.* 6*d.* whilst Mr. CLIFF and Mr. ZALMANSON considered the dividend should be 2*s.*

A letter was read from Mr. Moses Bawden, the agent, recommending the use of a rock-drill, and the CHAIRMAN pointed out that it was unadvisable to divide every penny, when an outlay might be required to carry out that recommendation.

Mr. PARRY then read the agent's report.

July 14.—In submitting to you our report for the general meeting to be held on July 17 we beg to state that since the last meeting the new engine-shaft has been sunk 9*l* fms., 3*l* fms., making 13*l* fms. 5*f.* below the 132; the shaftmen are now engaged in cutting plat, after which skip-road and pent-house will be put in preparatory to driving the levels east and west at the 14*l* to get under the ore ground driven through in the 132 east and west of the shaft; every available effort will be put forth on our parts to open out these two points with all possible dispatch. In the 132 we have two men driving west of the shaft to get back under the ore ground driven through in the 120; the lode at this point is unproductive. We are driving the 132 east of shaft, by six men, and are pleased to say that the last 7 fms. of this drivage have yielded ore to the value of 45*l.* per fathom. The lode in the end contains a portion of mundic and spar, which has reduced its value to 35*l.* per fathom. In the 138 we have two men driving east of shaft; the lode is unproductive, and has been so for some time; nevertheless, we should not be discouraged, but push forward into the hill towards Crowndale. Its being poor, as referred to, is a true characteristic of the Crebor lode, for we find after driving a considerable distance in poorer ground copper ore has been met with in different parts of the mine.

The 103 cross-cut driving north to intersect the Bridge lode has been extended 25 fms. Since the last meeting we have intersected a small branch containing arsenical mundic and copper ore; this has been referred to in our reports.

The strata is impregnated with spar more than it has hitherto been. At the 72 we have four men driving east to get under the ore ground driven through in the 48, where the lode was valued 20*l.* per fathom. We are very anxious indeed to reach this point; judging from the lode driven through in the 48, and the present strata in the 72 we see no reason to doubt why a good lode should not be met with.

We have recently cut water in this end which has drained the 48, showing the lode to be porous throughout. We are forcing on the 48 by four men by the side of the lode to open out the ground more expeditiously, as we consider this to be a very important point in the future of the Crebor. We have driven on this part 35 fms. in the former part of this drivage the lode has varied from 10*l.* to 20*l.* per fathom. Since then it has fallen off in value, but of a very masterly appearance, containing capel, arsenical mundic, spotted with copper ore. Therefore, we propose to continue this course, and cut through the lode when thought advisable. The different points of operation continue to yield in the aggregate 33 tons of copper ore per fathom.—H. PHILLIPS, P. D. HOLMAN.

Mr. SCHOFIELD seconded the motion for the adoption of the accounts and the agent's report, which was put and carried.

The CHAIRMAN moved that a dividend of 2*s.* 6*d.* per share be declared, which was seconded by Mr. SCHOFIELD.

Mr. CLIFF moved, and Mr. ZALMANSON seconded the declaration of a dividend of 3*s.* per share.

On a show of hands the dividend of 2*s.* 6*d.* was carried almost unanimously, the larger dividend being only supported by the mover and seconder.

Mr. SCHOFIELD moved that an application be made to the Duke of Bedford for a lease of the eastern mine.—Mr. A. THOMAS seconded the motion, which was carried.

The CHAIRMAN said that before long they might obtain a new lease of the whole property, and relieve himself of the personal responsibility of the present lease.

Mr. SCHOFIELD pointed out several of the points in the mine which it was considered desirable to prosecute, after which the proceedings closed with a vote of thanks to the Chairman.

PRINCE OF WALES MINE.

The ordinary general meeting of shareholders was held at the offices of the company, Gracechurch Buildings, Gracechurch-street, yesterday. Mr. J. Y. WATSON, F.G.S., in the chair.

Mr. C. B. PARRY (the secretary) read the notice convening the meeting and the minutes of the preceding meeting, which were confirmed. The accounts from March 31 to July 19 showed a balance of liabilities over assets amounting to 113*l*.

Capt. S. ROBERTS (July 18) after reporting on the various points of operation, said:—

We have repaired the crusher by putting in new rolls, spindles, and sundry other repairs; put in a new stamping, the axle only excepted; put in a new stamping, and gear to work the same, complete: the whole of which are now in excellent working order. The cost of materials of all this work has been already charged. We have also nearly completed a new footway in the new engine-shaft to the 45*l* fms. level. In conclusion, our prospects at present are very encouraging indeed, much more so than at any previous occasion, and should they continue we shall be in a position to considerably increase returns after the present month.

The CHAIRMAN said: Although our returns do not come up to what we were led to expect at the last meeting, and our accounts, so far as figures are concerned, are not much more satisfactory than they were then, what we consider a great discovery has been made at the mine, and if our present expectations are realised we may shortly have one of the best in Cornwall. For it is now proved beyond almost any doubt that we have cut the Prince of Wales main lode, both at the 77 and 90 fathom levels, and that the lode worked upon by the old company which left the main lode about 25 fathoms from the shaft. You will remember some months ago attention was called to the great influx of water from the 77 west, when it reached the cross-course; the agent reported that the water coated everything with copper, and some very rich stones of ore were also washed out. This led the agent to drive a cross-cut on the cross-course north, and after a time he cut a large lode, but could not work it, owing to so much water. He then commenced driving a cross-cut north on the same cross-course at the 90, here a fine lode has been met with 6*l* wide, precisely under the spots where cut in the 77, and the agent is now positive that this is the main lode of Prince of Wales, which formerly gave the dividends, and that these levels, as well as those above, were driven on a branch or south lode, which diverged from the main lode, 25 fathoms from the shaft. A cross-cut will now be put out at the 55 to cut the same lode, as it was very rich above that level to a great many fathoms east. The accounts now presented show—Copper sales, 33*l*. 2*s.* 1*d.*; tinstales, 39*l*. 14*s.* 8*d.*; the four months' costs have been 1915*l.* 10*s.* 10*d.*; liabilities over assets, 113*l*. 1*s.* 2*d.* The sale of ore yesterday, 48 tons, realised over 4*l.* per ton, and the agent has for sale 3 tons of copper precipitate of 4*l.* per cent, produce, which ought to bring nearly 25*l.* per ton. The plan shows that the lode has diverged very much. The Duchy agent has been there, and he says that, notwithstanding the discovery, the mine is 50 per cent. better than it was at the last meeting, and he is of the same opinion as Capt. Roberts.

Mr. WAGSTAFF: What is the width of the lode?—The CHAIRMAN: So far as we have seen it is 6*l* wide; but they are not through it yet. Capt. Roberts, in a letter to Mr. PARRY a few days ago, says—"Ever since I have known the mine I have had a very strong idea that the Prince of Wales lode is not seen in the western levels anywhere, and since we have cut this lode in the 90 I am fully convinced of the fact. I showed it to Capt. Seccombe, Mr. Waiters, and Capt. Richards, and they concur in the same opinion. To me the 90 is an absolute proof. I have sent it to the office a rough sketch to give you an idea of how all the levels are driven away on the south lode, and left the Prince of Wales lode untouched except in the 77 and 90 cross-cuts, as shown in the sketch. It is very probable there may be a rich mine now standing a little north, all through the western part of the mine. It is a rare specimen at any rate." The Chairman added that by some people he might be thought sanguine with regard to the future of the mine; but he had supported his opinion by paying nearly 50*l.* a year in calls during the last two years. He hoped to be rewarded, however, and that he would have the pleasure of seeing dividends paid for many years to come.

Mr. BROWN: Has the mine been inspected by any other agent than our own?

Mr. PARRY: It has been inspected by the Duchy agent and Capt. Seccombe lately for shareholders, and they were very pleased with all they saw.

Mr. MACMILLAN moved the adoption of the accounts and the agent's report, and said it was a subject for congratulation that they seemed to have a very reasonable prospect of realising some profit from the venture. He considered the report exceedingly gratifying.—Mr. BRITAIN seconded the motion which was adopted.

On the motion of Mr. WAGSTAFF, seconded by Mr. BROWN, a call of 2*s.* 6*d.* per share was made.

It was also decided to give notice to the shareholders in arrear of calls that their shares would be forfeited if the arrears were not paid on or before the 8th of next month.

A vote of thanks was passed to the Chairman, and the meeting then closed.

CARDIFF AND SWANSEA SMOKELESS STEAM

it was thought he would improve the mine considerably. These sanguine anticipations have not been realised, and the meeting held a fortnight since showed that the concern was in a terribly disappointing state. That so depressing an effect, indeed, had the great loss been upon the adventurers that several important adventurers seriously threatened to throw up the sponge at the next meeting if an equally unsatisfactory statement should be presented. The shareholders, however, expressed confidence in the manager, who was requested to reduce the costs. The announcement of the resignation of Capt. Nicholls so soon after agreeing to make an effort has caused, to say the least, surprise.

LEVANT.—A sixteen weekly meeting of shareholders was held on the mine on Tuesday. Mr. R. White, the purser, presided. The tin sales realised 4730*l.* (10 tons unsold being credited because of an accident); copper sales, 2678*l.*; arsenic, 80*l.*; and, with other receipts, total credits, 7270*l.* A profit was shown—85*l.* brought over from last account being included—of 679*l.* 16*s.* The report of the agents (Capts. J. Newton, M. Trembath, and H. Nankervis) was adopted, and a dividend of 5*s.* per share was declared. At the dinner the Chairman expressed an opinion that Levant would go on paying small dividends for years to come, and Capt. Boys (Wheat Owles) said there was not a better mine in the county, underground.

EAST BOTALLACK.—At the meeting on July 13 the accounts for the 16 weeks ended June 23 showed a credit balance of 6*l.* 10*s.* 8*d.* A call of 3*s.* per share was made. The Chairman congratulated the shareholders upon the improved prospects of the concern. Captains Justice and Trehair, in concluding their report upon the mine, say:—

At the stamps we are engaged in putting the machinery in good order and enlarging the dressing-floors, in order to enable us to treat the increased quantity of tin-stuff that will be available as soon as the driving of the next level is carried out. It will take about another month to complete this work when stamping will be at once commenced, and regular monthly sales of tin follow, and if the lode in the driving of the next level continues equal to what it has been in sinking the shaft (and judging from the district we fully expect it will), we believe before the end of the year to raise sufficient tin to make the mine self-supporting, and with further development in depth pay good profits. All the machinery throughout the mine, including the pitwork recently put down in the new shaft and the line of rods thereto from the engine, continues to work remarkably well. We have now in stock at surface tin-stuff sampled containing over 1*1/2* ton of black tin which has not been credited in the accounts presented to-day.

CAMBORNE VEAN.—At the meeting on Tuesday the accounts showed a loss on the six months' working of 501*l.* 14*s.* 7*d.* and a debit balance after deducting the January call of 204*l.* 4*s.* A call of 1*s.* per share was made. Capts. Prisk and Johns, in their report, stated that the 56 cross-cut, driving north of the north lode, is still in a beautiful channel of ground, having passed through several branches rich for ore. They have every confidence in meeting with a good lode here in the course of a few fathoms driving. On the whole they considered their prospects very encouraging. Their last sale of copper was 40 tons, and they hope to do as well, if not better, before the next meeting. The manager (Captain Prisk) remarked that at the present their operations were limited. He attached the greatest importance to the cross-cut driving north, and in the course of the next four months he had every confidence that they would meet with the lode. Mr. W. H. Rule considered that they had tribute ground enough there, provided they had a skip-road down to the 140 fathom level, to make a profit. It spoke well for the mine that during the last six months four men had broken 170*l.* worth of copper. If they had a skip-road down to the 120 fathom level, they had tribute ground there that would pay at 10*s.* tribute. He thought the working of that mine ought to be conducted for eight guineas per month, in order that outsiders might have no ground for complaint. They had a good mine in Camborne Veal. There was nothing like it in the county, and he believed they would pay a dividend there before any other mine that had been started in Cornwall within the last five years.

LOVELL TIN MINE.—In the south part of this mine a very rich lode was discovered some years since, which from about 20 fms. from surface paid regular dividends until at a further depth of 20 fms., or 40 fms. from surface, the lode had dipped into the adjoining property, from which time regular and continuous calls have been made upon the shareholders, until it was decided to abandon this part of the mine, and attention was directed to the lode in the north part; after sinking some trial shafts on four lodes, the manager, Capt. Joseph Prish selected which he considered the most promising for the engine or main shaft, and already, although only 14 fms. below the surface, a most promising lode is being opened up, varying from 5 ft. to 8 ft. wide, in the bottom of the shaft, all the lode-stuff being stamping work, and which, to use the manager's own words, "a little improvement in the quality of the lode, which we are sure to have as we get deeper, will place this mine in a good position once more." This mine has the advantage of water-power both for pumping and dressing.

DOLCOATH.—Although Dolcoath Mine has been going through a period of adversity, the adventurers have been given to understand that it continues to look remarkably well, and that whatever unpleasantness may take place with regard to the demand on the part of the landowner, and the frauds by John Mayne, the mine itself will prove to be all right. It appears that Dolcoath Mine has recently been inspected by a gentleman of undoubted respectability and great experience, intimately acquainted not only with the workings of our mines, but also with the great body of Cornish mine-adventurers, both those outside the county, and those on this side the Tamar. The following are the more salient points in this highly interesting report:—

The engine-shaft is sunk 12 fms. below the 364 in a fine course of tin. The lode carried in sinking the shaft is about 8 ft., but a few fathoms west of shaft, in the 364, at the junction of the south lode with the main lode, the width of both together is about 30 ft., and worth 7*l.* per cubic fathom. In about a month from this time levels will be started east and west of the engine-shaft at the 376, when a splendid section of tin-ground will be opened out for stamping. The writer goes on to say that the deepest drivages in Dolcoath are the richest, and the ground very easy for working. It is his opinion that this south lode will yield large quantities of tin—shallow if properly developed; but in order to do this a shaft should be sunk to prove it east of the present workings. This is the new shaft which has been frequently spoken of at Dolcoath meetings. The 364 fathom level has been driven 10*l.* fathom east of the engine-shaft. There is a capital "shoot" of tin for 30 fathoms east of this shaft, and then a comparatively poor bar of ground, but beyond this there is a fine lode of tin for over 50 fathoms long, standing entirely above from the 364 to the bottom of the 382, with winzes sunk through ready for working. The most important part of this report, however, is that in which the writer says:—"I find extensive alterations have been made in the pitwork at the engine-shafts to ensure the uninterrupted working in the bottom of the mine during the winter months. The reserves having been increased in the deep levels, drivings will shortly be started east and west of the engine-shaft in a fine course of tin in the 365." The report winds up with the following encouraging statement:—"The lease question at Dolcoath is settled for 25 years, and the mine can now be worked to yield splendid profits—probably would give profits to the extent of 40,000*l.* per annum with tin at the present price."—West Briton.

GAS SHARES.—The principal business in these shares, according to this evening's report of Messrs. W. L. Webb and Co., of the Stock Exchange and Finch-lane, has been:—Buenos Ayres New (Limited), 8%; Bombay (Limited), 5% to 6%; Brighton and Hove General (ordinary), 34%; Commercial Consolidated, 21*l.* to 21*1/2*%; Continental Union (Limited) Ordinary, 27*1/2*%; ditto new, '69 and '72, 19*l.*; ditto 7 per cent. Preference, 27*1/2*%; European (New), 13*1/2*%; Gas Light and Coke, A (Ordinary), 19*1/2* to 19*1/2*%; ditto, H, 7 per cent. Maximum, 14*1/2*; ditto, I, 10 per cent. Pref., 22*1/2* to 22*1/2*%; ditto, 4 per cent. Denture stock, 10*1/2* to 10*1/2*%; Imperial Continental, 20*1/2* to 20*1/2*%; Monte Video (Limited), 15*1/2* to 15*1/2*%; Rio de Janeiro, 22*1/2* to 23*1/2*%; South Metropolitan, A, 22*1/2* to 22*1/2*%; Gas stocks very firm, especially home companies and Gaslight and Coke.

INSURANCE SHARES.—According to this evening's report of Messrs. W. L. Webb and Co., of the Stock Exchange and Finch-lane, these in as follows:—Atlas, 18*1/2* to 18*1/2*%; Commercial Union, 19*1/2* to 19*1/2*%; City of London Fire (Limited), 2*1/2*; ditto Corporation (Limited), 3%; Fire Insurance Association (Limited), 2*1/2*; Marine (Limited), 26*1/2* to 26*1/2*%; Indemnity Marine, 13*1/2*; Lancashire, 6; Liverpool, London and Globe Fire and Life, 20*1/2*%; Phoenix, 2*1/2* to 24*1/2*; London Passengers, 7*1/2*; Royal Exchange, 39*2* to 29*2*; Universal Marine, 6 to 6*1/2*. Insurances steady, marine companies easier.

TRAN-WAYS.—The closing prices of this evening, as quoted by Mr. W. Abbott, of Tokenhouse-yard, are given in tabular form in the last page of the Journal.

RAILWAY AND GENERAL MARKETS.—Referring to the course of business done to-day during official hours (11 to 3) Mr. Ferdinand R. Kirk, Brixton-lane, writes:—*Opening.*—A partial collapse in American railway stocks and shares was looked for this morning, sales being pressed last night from New York long after business hours. There is instead a general recovery of from 4*1/2* to 5*1/2*%. Atlantic Firs are 46*1/2*%, and Erics 38*1/2*%. United are a steady market at 7*1/2*%, and all things considered, are wonderfully firm. The prospect of securing Great Eastern at 7*1/2*%, or below, is not attracting buyers as yet. Pending the meeting to be held at three o'clock this afternoon, dealings in Organics are practically suspended; shares are quoted 1*1/2* to 1*1/4*%. Orebors are not benefited by the 2*1/2* ed. dividend declared on Tuesday, being 2*1/2* to 2*1/2*%. Charnier, 5*1/2* to 6*1/2*; East. Wheat Rose, 5*1/2* to 6*1/2*; Old Shepherds, 5*1/2* to 6*1/2*; Home Mines Trust, 9*1/2* to 11*1/2*; Mounts Bay, 4*1/2* to 6*1/2*; Prince of Wales, 5*1/2* to 6*1/2*; all (2*1/2* ed.) paid.—*Closing.*—Great Eastern are no better than 69*1/2*%; but there is a steady tone elsewhere; Brighton A and Sheneid A being 5*1/2* higher, and United 5*1/2*%. Mexican Railway Ordinary are 1*1/2* up, and Trunks have a firm appearance. Colombian Hydraulic, 5*1/2* to 6*1/2*; Devon Consols, 3*1/2* to 4*1/2*.

FOREIGN MINES.

BARANCANNE COPPER.—J. Garland, July 7: During the month the new engine-shaft was sunk 4 fms., making the depth 6 fms. 4*1/2* in. The ground, excepting the last 2 ft., which has been a mild light killas, has been throughout a stiff brown sandstone. We have commenced driving a cross-cut from the 24 south towards the new engine-shaft by four native miners. The crushing machinery, engine, and boiler, &c., have arrived at Lisbon, and will we expect soon reach the mine. We are taking out foundations and making arrangements for receiving and placing the machinery. For the last two or three weeks it has been very difficult to get a requisite number of men to carry on the work, it being now full harvest time. The miners' cottages are built and will we hope be completed this month.

CALIFORNIA GOLD.—A Rickard, June 23: The shaft is down 1454 ft.; the hoisting ropes have deteriorated during the past 10 days more rapidly than could have been anticipated, and it is desirable for safety to suspend work in the shaft until new ones have been received. The 1400 ft. level east is in 81 ft.; the lode maintains its great regularity in its bearings, being 2*1/2* ft. wide, yielding 6 tons of fair grade milling ore per square fathom. The 1400 west is in 70 ft.; the ground opened out during the week has been of a bumpy nature, the end shows 20 in. of good grade ore. The 1300 winze west is down 32 ft., and is blocking out valuable stoping ground; the lode is 3 ft. wide, yielding 7 tons of milling ore per square fathom. The 1300 rise west is up 14 ft.; the pay is smaller, now 6 ft. wide. The extension of the stopes in this level has been carried 27 ft., and stoping ground valued at 5 tons per square fathom is being opened out west of the main stopes. The 1300 stopes west are putting out 10 tons of fair grade milling ore per square fathom. From the 1250 ft. level stopes east an output of 6 tons of high grade milling ore and 1*1/2* ton of smelting ore is being made per square fathom of excavation. The 1250 rise east is up 51 ft.; the lode in the rise is now 1*1/2* ft. wide, yielding 3 tons of milling ore per square fathom. The 1100 rise west is up 25 ft.; work has been resumed in this rise, but no improvement has yet been seen in the lode, which is 6 in. wide. In the 1100 stopes east the lode continues to yield satisfactorily; a large portion of the mineral now returned comes from the footwall vein.

Mr. Rickard, July 19: Mill run, 320 tons; yield, \$2000 (400*l.*)

COLORADO UNITED.—Mr. Macrae, June 23: The 13th level, east of the silver shaft, continues to hold from 3 to 4 in. of ore, and is being steadily pushed forward. Stop No. 2 at the back of this level is looking splendid carrying from 4 to 5 in. of good ore. The 12th level has no change, still carrying ore at the bottom of the drift. Stop No. 2 at the back of the 12th level was completed on Tuesday last. Stop No. 3 is looking well, carrying 4 in. of good ore. The mill has not been running quite so well, owing to the rush of water in the creek, which carries with it mud and sticks, and thus blocks the water-wheel, and necessitates the shutting down of the mill every afternoon to clear the wheel. A screen has now been put up, which it is expected will put a stop to the present state of affairs. The following sacks have been shipped during the week:—189 sacks second-class cobbled ore, weighing 9 tons 12*1/2* lbs.; 31 sacks screenings, weighing 1 ton 10*1/2* lbs.; 70 sacks zinc headings, weighing 3 tons 12*1/2* lbs.; total, 281 sacks, weighing 14 tons 14*1/2* lbs.

Mr. Hamill has since called to the effect that on June 20 water broke into the mine, but that he had been pumping, and was resuming work in the 13th level—this is the deepest level. The May profit was \$4709 and 49 vouchers for ore were this day received by the company, showing a total of 138 tons 323 lbs. worth \$15,536 15*1/2* c.

EBERHARDT.—Frank Drake, June 23: South drift from No. 3 raise advanced 11 ft., total 148 ft. The character of the rock continues about the same as last reported. The seam along the wall is carrying about the same amount of quartz. The raise from the 700 ft. point in this drift is up 8 ft., in good looking ground. When the carmen are not employed removing the waste rock I have them at work in the drift north from sale, having now advanced it to a total length of 74 ft. The ground is quite soft, it being mostly clay, and in this clay we find stringers of carbonate ore.

GOLD COAST.—Report from the mine, dated June 11, announces the arrival of the manager. Referring to the mill he says:—"I do not intend to start it again until we have effected some necessary repairs, for I want to get everything in order for a solid six months, crushing on our first quality ore. I think that within the present month these repairs will be finished, and I am in hopes that by that time the new tunnel will have cut the workings and thereby enable us to supply the mill with an abundance of the rich ore that I have so often written about. The Elephant stamper will also by that time be again at work." The report goes on to say "You will probably be pleased to hear that the heap of inferior ore from which we have hitherto been crushing is now nearly finished.

In future I intend with the aid of the new tunnel to extract nothing but the best ore; that is, until we have a large increase of stamping machinery. So far as we have got with the cleaning up (and we have not yet concluded it yet) the result is very satisfactory, for I have over 330 ozs. of hard amalgam. We will probably have finished the cleaning up by the end of this week, when I shall at once send home the gold consigned to the company's account at the Clydesdale Bank." The new boiler and engine is almost completed. The ore in the faces of the levels going north in the mine looks better than ever, and when the new tunnel is finished we will get plenty of that ore to keep the mill going. Deaths among Europeans have been so prevalent here lately, that I am doubly proud of our white men's boast that they neither die nor get invalided home as unsuitable for the climate."

HOOVER HILL GOLD.—July 3: I have not yet retorted the amalgam from the last month's run. As soon as that is done I will send report for the month. The mill only ran by day, and the ore was not so good as usual, so the yield will be comparatively small. I am pleased to say that in cutting in from the bottom of the Galimore we have got into some strings of good ore. Good progress is being made in the drift from the bottom of Hawkins' shaft, and it will not be long now before we hole through to the winze. The wheat harvest is over, and there is now an abundance of labour.

KAPANGA GOLD.—Telegraph: Winze holed. Continued torrents; 70 level flooded, repairing damages. Scotty's no returns.

NEW EMMA SILVER.—G. Collins, June 25: Since my report of June 18 I have sunk the shaft 4 ft., making the depth below Bay City Tunnel 181 ft., and have extended the cross-cut 15 ft., making the distance from the station 141 ft. Vein matter continues to look favourable, and pumps and machinery working nicely.

NEW EMMA SILVER.—George Collins, July 2: Since my report of June 25 I have sunk the shaft 3 ft., making the depth now below Bay City Tunnel 189 ft. Have extended the cross-cut 12 ft., making the distance from station 155 ft. Have had survey made from incline to cross-cut, and the distance still to run to make a connection is about 40 ft. Rock continues to look very favourable, being much more mineralised, with occasional nodules of ore, but not enough to save. Have made three small shipments of concentrated ore, which will appear in June accounts. Concentrating is still being done by tributaries.

PESTARENA UNITED.—Henry J. Gifford, July 15: Val Toppa: No. 1 level south, on new lode, has still further improved; the lode is regular, and in a more genial class of rock, and if this continues we shall be opening out some stoping ground.

The end at present produces about 5 tons of 15 dwt. per ton per fm.

The flat exploratory stopes, on the east side of No. 1 level, turns out about 15 tons per fathom of 10dwt. per ton; and, although a portion of the quartz has to be rejected, the western part of the stope, especially along the footwall, shows some good veins of pyrites. The rise in back of No. 1 level goes forward on a small branch of poor quartz, spotted with very granular pyrites. The stope above No. 4 level, on the flat lode, is quite finished. The other stopes continue to yield about the usual quantity of ore. The mill duty at both districts is somewhat higher than for the preceding month, that of Val Toppa being 80*l.* per cent. and Pestarena 82 per cent. At Val Toppa this may be accounted for from the fact that in May no tailings were treated, whereas last month we had the tailings for both months.

W. Roberts, H. P. Clemes: Pestarena, No. 5 Lode: The 23 end north has been contracted, and contains less quartz; the yield is 2 tons a fm. of 4 dwt. a ton; 55 end south continues in hard micaceous rock with a small branch of ore against the footwall, yielding 2 tons per fathom of 1 oz. per ton. The 65 end south is in partially decomposed micaceous schist, with quartzose bands carrying a little pyrites, yielding 5 tons per fathom of 4 dwt. per ton. We have within the last few days cut a little water. The 50 end north shows the lode more contracted and without ore. The 50 end south carries a large quartz lode traversed obliquely by a head of slightly water rock, yielding 9 tons per fathom of 4 dwt. per ton. The 50 end north is also in massive quartz carrying ore against each wall, and yielding about 8 tons per fathom of 10 dwt. per ton. The 50 end south still maintains a spicce of ore last referred to, but is not so productive; it, however, gives a little saving work. On No. 1 lode the 50 end north advances in stiff sterile schist. The 120 end north is in hard micaceous schist, and carries a small leader of pyrites, yielding 3 tons per fathom of 9 dwt. per ton. The 120 end south is in easier rock, and carries a small mixed lode against the footwall, yielding 3 tons per fathom of 13 dwt. per ton. At Pozzone the allit end is in hard micaceous rock, and the lode is taking a more easterly direction. The stopes in the aggregate are producing much the same for quantity and quality of ore as when reported on the 1st of the month. All working surface progress satisfactorily, and our machinery continues in good working condition.

PIERREFITTE.—Manager, July 14: Since my last report a great deal more blonde than usual is found in several of our stopes and which has taken the place of lead as some extent. The result is we have not the same percentage of lead from the ore broken as we usually get. This will change again soon I have no doubt. We have broken during the past fortnight and sent to the floors 650 tons of mineral, and from this we have extracted 76 tons of lead and 55 tons of blonde. There is no change to note in the ends in the upper part of the mine going north-west and south-east. The lode in No. 2 level is much improved in value. In continuing to cross-cut after being in the lode about 6 ft., we reached a branch of rich silver-lead ore, and some blonde about 2*1/2* ft. wide. In the back of this we have schist, and it is possible we have the hanging-wall of the lode. I have now put the men to drive on its course both ways. Yesterday the engine was put to work, and went very well indeed. To-day everything will be got ready, so that we shall be able to use the engine for driving one of the crushers, which we intend to do on Monday next. The water has very much fallen off lately, owing to hot dry weather, and to the farmers taking some from the ravine to water their meadows, so we have not enough to drive one crusher and the stone-breaker together. At Castillon we have opened out on the lode about 2 fms. In a few days time we shall be obliged to begin to form the gallery. The ore-bearing part of the lode here is about 3 ft. 6 in. wide—i.e., the part on which we are driving, and is composed of silver-lead, blonde, white spar, and

The winze below the 85 south is down 13 fms. 3 ft.; lode 2 ft. wide, with stones of cre, but not to value. The 85 south is in a lode 3 ft. wide of quartz, with stones of ore of a promising character. The same level, going north, is in a lode 4 ft. wide, composed of quartz and calc spar, but not to value. No. 1 stope, in the 85 south, is worth 25 cwt. per fathom; No. 2 stope, 30 cwt. per fathom; and No. 3 stope about 35 cwt. per fathom. The 70, south of Wilson's shaft, is driven 19 fms.; lode 2 1/2 ft. wide, and worth 2 1/2 tons per fathom. A stope below the 70, south of Wilson's shaft, is worth 4 1/2 tons per fathom. A stope in the back of the 70, south of shaft, at 10s. per ton, is worth 6 1/2 tons per fathom. A stope above said north of shaft is worth 4 1/2 tons per fathom. A stope below the same level, north of main rise, is worth 4 1/2 tons per fathom. The 41, south of Grieron's winze, is worth 5 tons per fathom. The 41, south of the 85 south, is worth 25 cwt. per fathom; No. 2 stope, 30 cwt. per fathom. A stope below the 70, north of Watson's winze, is worth 4 1/2 tons per fathom. A stope in the back of the 70, south of shaft, at 10s. per ton, is worth 6 1/2 tons per fathom. A stope above said north of shaft is worth 4 1/2 tons per fathom. A stope below the 41, south of Grieron's winze, is worth 5 tons per fathom. The 41, south of the 85 south, is worth 25 cwt. per fathom. A stope above the 41, north of shaft, is worth 35 cwt. per fathom; No. 2 north is worth 30 cwt. per fathom. Gripp's adit is driven south of Wilson's shaft altogether 66 fms. 6 in.; lode in present end 8 ft. wide, worth 3 1/2 tons of lead ore per fathom. The country rock here is all that could be desired, and, with such a wide ore lode, all in whole ground, we look upon this point as one of great moment to the company.—Raik Vein: The 10, south of winze, at Watson's shaft, is opening tribute ground.—Jeffrey's Lode: The 20, going west of Raik junction, is worth 30 cwt. per fathom. The stope above the said level is worth 25 cwt. per fathom. We have four new bubbles started on slime-floors, and the carpenters are now fixing the tables or frames with classifiers for the finer ore-stuff. We have masons building kilns at Wilson's shaft for the better separation of the crests from the dead, and we hope soon to be in a first-rate position in regard to the dressing of the produce of the mines.

LOVELL.—J. Prisk, July 18: The lode in the shaft sinking below the 14 is 8 ft. wide, all stamping work and improving as we go down. In the 14 east the lode is 7 ft. wide, all stamping work; and in the west the lode is 6 ft. wide, yielding very promising. The lode in the air-shaft, 11 fms. west of engine-shaft, is 5 ft. wide, all stamping work, although only 8 fms. from surface; a little improvement in the quality of the lode, which we are sure to have as we get deeper, will place the mine in a good position once more. It is seldom such a large and fine lode to be met with at only 14 fms. from surface.

MARKE VALLEY.—W. George, July 18: Since reporting for the general meeting the 80 cross-cut south as well as the 90 north have both been driven at a satisfactory rate, but nothing further discovered. The stopes and pitches continue without change.—Wheat Jenkins: In the 15 east we have got the lode east of the cross-course about 5 ft. wide, where it is producing good stamping work worth 30 lbs. of tin to the ton of stuff, and although this is not equal to what it made before the intersection, we think it will improve as the drivage is extended. The western end as well as the rise in back of this level are of the same value as last reported. The stamps continue to work very satisfactorily, and the dressing-flows are being extended as fast as the nature of the work will admit of.

MELLANAR.—J. Gilbert, July 18: The 30 cross-cut, south of Gundry's shaft, was driven last month 1 fm. 5 ft. 9 in.; we are still meeting with small veins of mundic and lead, and the ground is easy for driving, and looking very congenial for mineral. The 70 cross-cut, north of the main lode, east of Gundry's shaft, was driven 1 fm. 4 ft. 9 in.; the ground is mineralised, and gradually getting wetter, and the men are making good progress in driving. The 100, west of shaft, on the main lode, was driven 2 fms.; the lode is 5 ft. wide, and yielding 2 1/2 tons of ore per fathom; this end is just under the winze in the 90, and we shall begin to rise very soon. The 110, driving west of shaft, on south part of lode, was driven 4 ft. 9 in.; the lode is 5 ft. wide, yielding 1 ton of copper ore per fathom, and is also worth 7c. per fathom for tin. The 110, east of shaft, on the main lode, was driven 1 fm. 3 ft. 10 in.; the lode is 4 ft. wide, yielding 1 1/2 ton of copper ore per fathom, and producing some very rich stones of tin. The 110, east of shaft, on the main lode, was driven 3 fms. 10 ft. 10 in.; the lode is 3 1/2 ft. wide, yielding 1 1/2 ton of copper ore per fathom, and some good stones of tin. The 90, east on the old engine-shaft, was driven 4 ft. 6 in.; lode 1 ft. wide, yielding 2 tons of ore per fathom, and looking very promising, but rather spare for driving. The 120, west of shaft, on the main lode, was driven 3 fms. 0 ft. 10 in.; the lode is 3 1/2 ft. wide, yielding 1 1/2 ton of copper ore per fathom, and letting out an increased quantity of water. The winze in the bottom of the 60, on the south part of lode, was sunk 1 fm. 2 ft.; the lode is 4 ft. wide, yielding 2 tons of ore per fathom, and will very soon be communicated to the 70. The winze in the bottom of the 90, west of Gundry's shaft, was sunk 5 ft. 6 in.; the lode is 5 ft. wide, and yielding 4 tons of ore per fathom. The rise in the back of the 110, at Gundry's shaft, was put up 1 fm. 5 ft. 3 in.; the lode is 4 ft. wide, yielding 1 1/2 ton of copper ore per fathom, and some good stones of tin. The 90, east on the old engine-shaft, was driven 4 ft. 6 in.; lode 1 ft. wide, yielding occasional stones of copper ore. The lode in the winze in bottom of old engine-shaft is 5 ft. wide, yielding 1/2 ton of copper ore per fathom, and worth 8c. per fathom for tin. We have computed this month's sampling to be 511 tons of copper ore.

MID-DEVON COPPER.—James Neill, July 14: A Shaft: Water in fork to bottom of 80; machinery working smoothly and well.—C Shaft: The 45 stope, worked by two men, is without change, except that the yield of ore for last few days has not been so good. I intend to suspend this point for a time, and next week re-move the two men to the 50 on some deposits of ore ground passed through in driving which are likely to turn out well. I still believe that there are larger deposits of ore in the vicinity of our working in the 45, which at some future time, I hope to give another trial. The 50 east from cross-cut north, worked by rock-drills and three relays of men has been driven 7 ft.; the stratum is considerably harder, consequently progress has been retarded. Compressor was stopped one day to pack stuffing-box and piston. I consider this to be only a hard bar of rock similar to what we have before met with, and expect soon to get through it with the drill. The yield of ore has also fallen off, which is invariably the case when the strata becomes harder, but have no doubt that on the other side of the bar we shall find it again improved in the yield of ore. Pumping wheel alterations are being pushed forward. Ore raised during week 18 cwt.

MOUNTS BAY CONSOLS.—W. Argall, J. James, J. Rowe, and W. H. Argall, July 14: Sydney Cove: During the past month we have sunk the shaft on No. 1 lode 3 fms. 3 ft.; the lode at present is split with a horse of kilas between, and worth about 22, 10s. per fm. In the rise against the shaft no lode has been taken down in the past week. We have set one tribute pitches on this lode at 13s. 4d. in 17. The cross-cut south from the new engine-shaft at the 10 has been driven 1 fm.; this has been reset to six men, at 22. 5s. per fathom, and we hope shortly to report the cutting of the No. 2 lode. The cross-cut north has intersected No. 6 lode, and we are driving on that with four men, at 22. per fm., to cut No. 4 lode. The level driving on No. 2 lode at the new engine-shaft, by two men, at 22. 7s. 6d. per fathom, the lode is larger, and producing occasional stones of tin. We have three tribute pitches east of this working, at 13s. 4d. in 17. On the Nos. 4, 5, and 7 lodes we have four tribute pitches working, at 13s. 4d. in 17. We are still deficient in water for dressing purposes.—Pebbles: We have dropped about 9 fms. below the 50 fm. level, and cleared near 2 fms. of stuff in the shaft, so that we are expecting to see the back of the 60 fm. level, and soon see the bottom of the engine. Men are also engaged putting in air machine and pipes in the 50, and in a cross-cut from which point we have a great deal of water.

NEW CARADON.—N. Richards, July 18: As stated last week, the men are busily engaged preparing for the erection of the water-wheel. We have also a full set of men removing the debris from the top of the shaft, which appears to be much crushed, preparatory to collaring up and securing the same, and no time will be lost in reaching the adit level as early as possible.

NEW KITTY.—Wm. Vivian, July 19: There is no change to notice in the mine since my last report.

NEW TERRAS.—J. D. Fraser, T. Edwards, July 19: We have completed the erection of a battery of 16 heads of stamps, and are now waiting the carpenter to put in the passes. The tramroad from the stone-breaking house to the stamps has been laid, and we are clear for bouldle and frames for dressing-floors. The water in the 18 cross-cut has so much increased that we are unable to proceed with that work until our pumping gear is fixed, and we hope to commence doing so in a few days. The waste water coming from the lodes speaks well for its consistency. It is without doubt, the champion lode of this district.

NEW WEST CARADON.—N. Richards, July 18: A stope in the back of the 30 on the main lode will yield about 1 ton of ore per fathom. A stope in the bottom of this level will yield about 1 ton of ore per fathom. Clyma's lode in the 38 driving west of cross-course is producing saving work for copper. No. 4 lode on which we are driving east at this level is slightly improved in appearance, producing good stones of ore. No change to notice in the cross-cut driving south at this level.

NORTH GREEN HURTH.—J. Polglase, July 12: The vein in the deep adit level is about 2 ft. wide, a kindly-looking vein, but without ore. No change in the rise in the south level from deep adit level. We shall commence driving the level in the new property next week. Good stones of solid lead were obtained from the Crookburn stream in the clay this week.

NORTH HERDOSFOOT.—T. Trelease, July 19: We have taken down a piece of lode in the stope in the back of the 117; it is not quite so wide as it was, but it continues to yield 12 cwt. of lead ore per fathom. The lode in the rise is also worth 12 cwt. of ore for the length of the rise. We have more mundic in the 117 end, and have also more water coming out of the end, and this increase of water in the end has drained the stope and a place or two in the side of the level. I think this proves that we have a porous lode near at hand. The lode in the 80 is about 1 ft. 6 in. wide, and producing stones of ore occasionally. We have commenced to dress another parcel of ore.

NORTH PENSTRUTHAL.—S. Davey, July 19: We have cut a branch in the 150 cross-cut bearing some good stones of tin. We shall see more in a few days.

NORTH TRESKERBY.—Pryor and Son, July 19: On Saturday last the following bargains were set:—To drive west at the deep adit level cross-cut, north of Scorrer Consols engine-shaft, on No. 1 tin lode, by six men and one labourer, at 4. 15s. per fathom; the lode in the end has varied a little in size since last report, and is worth about 20c. per fathom for tin. We also set to four men to drive east of cross-cut, on this lode, at 4. 12s. per fathom, where the lode is quite 3 ft. wide, and worth for tin 25c. per fathom. The carpenters have completed the woodhouse for storing, and making marketable the tinstone, and the floor of same is being paved, and will be complete by Friday. The arrival of the rock-drilling machinery we are daily expecting.

OKEL TOR.—H. Bullford, J. Rodda, July 19: The new eastern shaftmen are making very good progress in sinking below the 80. The lode in the 80 end east is producing saving work for mundic, and good quality tinstuff for the stamps. The two stope in the back of the lode are yielding fair quality tinstuff, and 10 tons of arsenic ore each per fathom. The 85 end, west of Gerry's cross-course, is not producing sufficient ore at present to value, but the lode is large, and has a kindly appearance. The stope in the back of this level is producing 12 tons of arsenical ore per fathom, and good quality tinstuff. The stope in the western part of the mine are producing on the average 11 tons of arsenical ore per fathom.

PARYS COPPER CORPORATION.—T. Mitchell, July 18: The 90, driving east of cross-cut under the open-cast, is improving in appearance and showing stronger indication for copper; good stones of copper ore are occasionally being met with. We also find small patches of copper ore in the driving west of cross-cut at the 80, and the ground is very similar to that in which large quantities of copper were formerly found in the shallow workings. The precipitation pits are pretty well charged with old iron, and some of the pits are doing very well, but the west pits, owing to the dry weather, are getting short of water; some good heavy rain would improve their condition. One of our plunger cases at Gwyn's engine-shaft suddenly broke out this week, and were obliged to change it; fortunately we had one on hand. We have also newly stocked the plunger pole belonging to this place, which work has just been completed, and both plunger and case are again in good working condition.

PENHALLS.—S. Bennett, J. Goyne, July 18: The 80 west end is without much change. The 70 east end contains a small good leader of tinstuff, worth

7c. per fathom. The 60 east end on south section of the lode is producing tinstuff of about 5c. per fathom. In the 60 cross-cut north no further lode has been found as yet. The rise in the back of the 50, south of the engine-shaft, is worth about 5c. per fathom. The Baldwin lode in the 42 west end is producing some little tinstuff, but not of much value.

PHENIX AND WEST PHENIX.—John Truscott, July 19: Setting Report:

Old Sump Shaft: The 130 to drive west, by two men, at 8. 10s. per fathom, is worth about 5c. per fathom. The Baldwin lode in the 42 west end is producing some little tinstuff, but not of much value.

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PHENIX AND WEST PHENIX.—John Truscott, July 19: Setting Report:

April 3, 2529.45 ounces, worth 9736*l.* 8s. 5d.; April 29, 1574.55 ounces, worth 5714*l.* 17s. 2d.; June 1, 1861.60 ounces, worth 7067*l.* 0s. 1d.; and June 28, 2512.30 ounces, worth 9722*l.* 13s. 4d. Kohinoor and Donaldson, $\frac{1}{2}$ to 1; the weekly report has not yet been received, having been delayed in transmission.

Ruby and Dunderberg, $\frac{1}{2}$ to $\frac{1}{3}$; the weekly report advises good progress in developing the ore body at the Home Ticket Mine. The new shaft is being sunk below the ore, so as to facilitate the workings. The ore body was dividing into two, one part pitching north and the other south. The tributaries at the Lord Byron Mine had come on a small seam of good ore, which was considered very promising. The tributaries at the Dunderberg were working on as usual. The weekly telegram advises an outturn of 113 tons from the Home Ticket and 14 tons tribute from the Dunderberg. The 116 tons smeltered, though still poor in quality, is rather better than the parcel smelted last week.

In Lead Mine Shares there has been no improvement worth re-ordering, and the amount of business doing is exceedingly limited. Great Laxey are quoted 16*l* to 17. Roman Gravels, 7*l* to 8*l*; these mines continue to look well throughout, opening up important bodies of rich ore ground. Tankerville, $\frac{1}{2}$ to $\frac{1}{3}$; some considerable purchases of shares have been reported during the past week. It is said that, owing to the exertions of the Chairman and managing director, some satisfactory arrangements are likely to be arrived at with regard to the royalties and the development of the mines. No doubt at the forthcoming meeting of shareholders on Wednesday next some further particulars will be given respecting the same.

The Bank of Egypt will pay on Aug. 4 the usual interim dividend at the rate of 5 per cent. per annum for the half-year ended June 30.

Weardale, $\frac{1}{2}$ to $\frac{1}{3}$ prem.; during the week Grove Rake, Killhope, and Green Laws Mines have been set on full work, and already there are indications of discoveries from the many exploratory bargains which have been set. The respective agents are examining other portions of the property this week with a view of starting other mines in this extensive mineral field.

Wheal Jane stocked tin, which was computed as being worth 2440*l.*, has been cleared off, and, after a portion of it had been re-dressed, has realised 2405*l.*

The Adamant Diamond Mining Company have declared an interim dividend at the rate of 10 per cent. per annum.

At the Stock and Share Auction and Advance Company's sale on Thursday the prices, among others, obtained were:—Civil Service and General Store, 17*l*, 6*s*; British Land, 10*l*. shares 5*s*. paid, par; Indian Consolidated, 33*l*, 3*s*; South African Syndicate, 50*l*; Akankoo (Gold Coast) Mine, 7*l*, 6*s*; Army and Navy Hotel, 5*l*. shares 2*s*, 1*s*.

At Redruth Ticketing, on Thursday, 2134 tons of ore of 5*l* average produce, and containing 111 tons 12 cwt. of fine copper, were sold for 5748*l.* 15*s*. 6*d*. being 2*l*. 14*s*. per ton of ore, 10*l*. 3*s*. per unit, or 5*l*. 10*s*. per ton of fine copper in the ore, and an average standard of 104*l*. 2*s*. Subjoined are the particulars of the two last sales. —

Date. Tons. Standard. Produce. Per ton. Per unit. Ore copper. July 5 ... 1441 ... £90 16 0 ... 7*l* 17 6 ... 10*l*. 7*l* 4*s* ... £53 1 0 July 19. ... 1118 ... 10*l* 2 0 ... 5*l* 4 ... 2 14 0 ... 10 3*s* ... 51 10 0 Compared with the last sale the decline has been in the standard 5*l*. and in the price per ton of ore about 4*s*. The sales and amounts realised were:—Devon Great Consols, 923 tons for 1338*l.* 15*s*. 6*d*.; Gunnislake (Clitters), 452 tons for 2033*l.* 1*s*.; South Caradon, 150 tons for 912*l*. 5*s*. 6*d*.; Holmbush, 140 tons for 280*l.* 7*s*. 6*d*.; Marke Valley, 120 tons for 362*l.* 6*s*. 6*d*.; Bedford United, 115 tons for 402*l.* 2*s*. 6*d*.; Wheal Arthur, 104 tons for 191*l.* 8*s*.; Gwanton, 82 tons for 59*l*. 9*s*.; Prince of Wales, 48 tons for 99*l*.

ORGANOS GOLD MINES.—The ordinary general meeting of shareholders was held yesterday at the Cannon-street Hotel, when the report and accounts were adopted. The prospects of the company appear to be excellent. Had it not been for the breaking down of two steamers on the Magdalena river (which the directors had calculated upon to convey the machinery to the mines) no money would have been required beyond the original capital of the company. The returns from the crushing of 18 heads of stamps are of the most satisfactory nature. A full report will appear in next week's *Mining Journal*.

SUCCESSFUL SINKING OPERATIONS IN THE ABERDARE VALLEY.—In Sept., 1882, Messrs. W. and John Beith, of Blackwood, who sank the Harris Navigation Colliery, the Pochin Pit, Tredegar, and several other collieries in South Wales, accepted the contract to sink the George Pit at Cefnpenner, about $\frac{1}{2}$ mile from Mountain Ash, the property of the Powell Daffy Company, of which Sir George Elliot, M.P., is the head. The Messrs. Beith had to give a guarantee that the contract was to be completed in 12 months, a task which was considered by competent men well nigh impossible; but notwithstanding that the pit is situated where no accommodation can be obtained for the men, and other difficulties of an extraordinary nature, the 2 ft. 9 in. seam was struck on Saturday, and on Tuesday evening the celebrated Four-feet seam was struck at a depth of 370 yards, the coal turning out to be of first-rate quality. The sinking operations have been pushed on with vigour, having attained a depth of 300 yards since the commencement, having to go through the greatest percentage of hard rock that has had to be contended with in the valley; a series of faults were also encountered which impeded progress. It is expected that the colliery will be opened out without delay, which will afford employment for a large number of workmen. The depth of the pit when completed will be 450 yards, and the 7 ft. and 9 ft. will be worked. The company are to be congratulated upon this result, and the contractors for the success which has attended their efforts. The manager of these collieries is Mr. H. W. Martin, brother of Mr. Martin, Dowlais.

SOUTH WALES INSTITUTE OF ENGINEERS.—The general meeting of members was held at Cardiff on Thursday (the President of the Institute, Mr. Edward Williams, of Middlesborough, in the chair), and attended by a large number of members. The following gentlemen were elected members. Mr. Henry Herbert, Ammanford, Carmarthenshire; C. T. Bunning, mining engineer, Cwmontgomery Colliery, Aberdare; J. Ray, colliery manager, Ton Pentre, Pontypridd; Alex. B. Bassett, C.E., Cardiff. Mr. David Hannah, under colliery manager, Ton Pentre, Pontypridd, was elected a graduate. A paper by Mr. Thomas Griffiths "On the Endless Rope Haulage at Cymmer Colliery;" a paper by Mr. David Evans "On Underground Haulage;" a paper "On Addyman's Friction Crutch," by Mr. Thomas Evans; and a paper "On Bunning's Improved Water Level," by Mr. C. T. Bunning, C.E., which had been read at the previous meeting, were discussed. Two papers by Mr. Sydney F. Walker, M.S.T.C., "On the Principles of Electric Lighting and Transmission of Power by Electricity," were discussed at some length, and the further discussion of them adjourned till the next meeting. A paper "On Injectors and other Applications of Nozzles," by Mr. W. D. Wright, was ordered to be printed in the proceedings of the Institute.

WEST PATELEY BRIDGE.—At a special meeting of shareholders held at the offices of the company, Gresham House, on Thursday (Mr. H. A. Hammond in the chair). The resolutions which were passed at a special meeting held on July 3, were confirmed. A letter was read from the manager at the mine stating that the royalty on lead had been reduced from 1-14*th* to 1-20*th*.

BIRMINGHAM AND HARROWBARROW MINING COMPANY.—The allotment of shares is steadily progressing, and it is believed that they will shortly be in a position to pay the liquidators of Wheal Fortune the 220*l.* for the property and get ore to market. It is pointed out that the geological position of the mine is all that can be desired for the production of minerals, being in the best silver-bearing district in the counties of Devon and Cornwall. It is bounded on the north by the Prince of Wales Tin and Copper Mine, and on the west by the Wheal Brothers, East Cornwall, and Wheal Langford silver and copper mines, all of which have returned large quantities of silver and copper. The sett is very extensive, having more than a mile on the course of the lodes. The mine is supplied with a powerful 30-in. cylinder double-acting steam-engine, equal to all the requirements of draining the mine to any reasonable depth. The three lodes which have been proved in several places, and which run the entire length of the sett, are the Harrowbarrow copper and

arsenic lode, and the Wheal Brothers and Wheal Langford silver lodes. These three lodes all form a junction in depth, and toward the west are intersected by cross-courses. The most southerly of these lodes has proved very productive of copper and arsenic, while both of the others are true silver lodes. One, the famous Wheal Brothers lode, about the adit level, yielded large quantities of rich silver ore in the Wheal Brothers, Prince of Wales, and Queen Mines, the last-mentioned being now included in this company's sett. The other is known as the Well lode, and is a continuation of the vein which in the Wheal Mexico, East Cornwall, and Wheal Langford Mines to the west contained the richest deposit of silver ever worked in the United Kingdom.

HAND-POWER ROCK-DRILL.—Messrs. Greenwood and Batley, of Leeds, have a good specimen of their drill at the Engineering Exhibition at the Agricultural Hall. It is claimed that the machine has had a wonderful success in America, where it is extensively used in mining, quarrying, colliery, and railroad work. The drill, as exhibited, was made for the American market, where lightness was a special object; but at the request of several English miners the manufacturers have decided to make the guide bars heavier, without, however, altering the other parts in any way.

ETOWAH AND AURARIA HYDRAULIC HOSE MINING COMPANY.

A prospectus of this undertaking is at present in private circulation, and will, no doubt, be made public shortly. The project is to build a ditch 24 miles long through the Dahlonega district of North-Eastern Georgia. It is pointed out that under ordinary circumstances there are no better investments than ditch properties, and that in California \$100,000,000 are invested in them. The Etowah and Auraria ditch will furnish the water to a large district of great gold-bearing capacity, which it virtually controls. Without the water the district is almost valueless. With the water its value can hardly be computed. The ditch is constructed under a special charter from the State, which not only gives it great privileges in the process of its construction and operation, but by giving it the exclusive right to turn the waters of the Etowah river and its branches, gives it control of all the water that can ever be furnished to the district, and thus for ever prevents any competition.

The district is not a newly-discovered one by any means, it having been the first to produce gold to any extent in this country. It had produced many millions of gold from the crudest manner of working previous to its discovery in California, in 1849. There is a demand to-day in the district, at remunerative prices, for all water the ditch can furnish. There is now in operation in the district 18 stamp-mills, nearly everyone of which is retarded in its operations for a large portion of the year for want of water.

There is almost an unlimited amount of material that will pay to work hydraulically. This material, suitable for washing, is composed both of placer ground in the ravines and branches of small streams that were worked over in early times with the Gum Rocker, the Long Tom, and other crude appliances, by the use of which more of the gold in the earth was lost than was saved; and large amounts of rotten or decomposed slate, standing in place, similar to the formations in El Dorado and Calaveras counties, California. General J. Condit-Smith, Messrs. W. P. Ward, Clarence King, Dr. Newberry, and others have favourably reported on the district, which will be more fully referred to in a future *Mining Journal*.

MECHANISM FOR REGULATING THE PRODUCTION OF ELECTRICITY.

It is well known that when a number of incandescent lamps are lighted in the same electric circuit and if it be desired to extinguish some of them a larger quantity of electricity passes through the remainder of the lamps, thereby producing an unnecessary degree of illumination in them and endangering the continuity of the carbon filaments. Now, the invention of Mr. HENRY WILDE, of Manchester, consists in an arrangement of mechanism by which the speed of the electro-generating machine is regulated to supply the varying amount of electricity required to maintain the varying number of lamps in the circuit to their normal degree of incandescence.

In this improvement a solenoid of high resistance or an electro-magnet is placed in the major circuit in which the lights are produced, and as the strength of the current in the solenoid varies with the diminished or increased number of lamps in the circuit contacts are made (by means of an iron core within the solenoid acting on a balanced lever) with metal studs connected respectively with two sets of electro-magnets, either of which is excited by the direct major or minor current of the electro-magnetic induction machine. The electro-magnets are mounted on the faces of two iron discs which are carried on a horizontal axle, and between the electro-magnets on the same axle is mounted another iron disc which constitutes the armature of the electro-magnets on each side of it.

Motion is given to the armature discs by means of suitable belts and gearing connected with the steam-engine or other prime mover, and as the electro-magnets are excited on one side or other of the armature disc they are brought into forcible contact with it, and the discs on which the electro-magnets are mounted are carried round the axle in the same direction as the armature disc. To the bosses of the electro-magnet discs, which act as drums or rollers, cords or chains are attached, which are connected with the valves of the steam-engine or other motor by suitable means, and as one or other of the electro-magnet discs rotates so the valve is opened or closed by the winding up of the cords one direction or the other on the roller bosses of the electro-magnet discs, and the speed of the steam-engine and electro-generating machine are regulated to produce the amount of electricity necessary to maintain the lamps to the normal standard of illumination.

Another method of giving a reversible motion to the rollers on which the cords are wound for opening and closing the valves of the steam-engine or other prime mover is to employ a clutch and three bevel-wheel arrangement, the clutch being thrown in and out of gear by means of a lever actuated by two sets of electro-magnets excited alternately in the same manner as the electro-magnets on the discs in the arrangement above described. Motion may be given to the bevel-wheels and rollers by suitable belts and gearing connected with the steam-engine or other prime mover.

MANUFACTURE OF NICKEL AND COBALT.

Commercial nickel, even when tolerably free from impurities, as is well known, cannot be welded, hammered, drawn, &c., because the metal, when in a molten condition, absorbs oxygen and retains the protoxide thus formed. In order to prevent this disadvantage, various processes have been tried, such as, for example, the admixture of phosphorus or magnesium to the molten metal, and Mr. Fritz Lotter, of Altena, Prussia, has also frequently tried, by the addition of metallic manganese, to obtain the same results as are obtained by the addition of magnesium. These experiments with metallic manganese did, however, not lead to any particularly practical results, because, for instance, the intimate admixture of the manganese with the nickel could not be so completely effected as was necessary. The experiments showed, however, clearly that the manganese had a very favourable influence upon the nickel, and a product was, at any rate, obtained that could be worked tolerably well both hot and cold. This mode of manufacture is, however, connected with various disadvantages, and besides the costly metallic manganese renders the manufacture too expensive. He therefore endeavoured to devise some means for effecting the intimate admixture of the manganese with the nickel could not be so completely effected as was necessary. The experiments showed, however, clearly that the manganese had a very favourable influence upon the nickel, and a product was, at any rate, obtained that could be worked tolerably well both hot and cold.

Oxide of nickel, free from injurious impurities, is mixed intimately in the form of powder with an oxide of manganese, in proportions to be determined for each particular case, after which the compound is formed, as is usual with nickel oxide, into discs or cakes, and reduced in the usual manner. When this mixture is melted to form castings the manganese separates out. The castings thus obtained show great purity, density, softness, and malleability, besides hav-

ing a very fine metallic lustre. They are capable, both in the cold and the hot conditions, of being rolled, hammered, welded, drawn, and generally worked in any desired manner. Furthermore, the so-obtained nickel has the property of rendering its alloys with other metals, such as copper, copper and zinc, and the like, considerably more ductile, and of better colour, and of producing dense and clean castings thereof.

The new process has also the great advantage that, by the addition of the inexpensive oxides of manganese, the nickel is scarcely rendered any more expensive, while the addition of phosphorus, magnesium, or metallic manganese is, as before stated, very difficult and expensive. In like manner metallic cobalt, in a ductile and malleable form, having properties similar to those above mentioned with regard to nickel, may be obtained by intimately mixing in like manner oxides of manganese with the oxide of cobalt in pulverulent form, and, after forming the mixtures into discs, cubes, or cakes, reducing the same in the usual manner, and melting it to form castings, and for use with alloys.

GOLD AND SILVER.—Messrs. PIXLEY and ADELL.—**GOLD:** There is no demand for gold, and all arrivals are purchased by the Bank of England; about 36,000*l.* in bars and coin, having been sent in; 100,000 sovereigns have been withdrawn for Lisbon. The Tamar, from the River Plate, brought 13,474*l.*; the British Queen, from New Zealand, 24,000*l.*; and the Lusitania, from Australia, 55,000*l.* Some amount has also arrived from the Continent, but the whole, according to present indications, will ultimately be sold to the Bank of England: 500*l.* was shipped to Bombay on the 17th inst. per P. and O. steamer Brindisi.—**SILVER:** 30,800*l.*, sold on the 13th inst. at 50*l*. per oz. standard; the price has since receded to 50*l*. per oz. our quotation of this day, owing to lower exchanges from India, and to the reduced rate obtained for the India Council Bills yesterday. The arrivals have been altogether unimportant. The P. and O. steamer Brindisi took on the 17th inst. 54,000*l.* to Bombay, and 55,000*l.* to Calcutta.

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ANALYST AND ASSAYER,

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Enquire or address, A. G. CHARLETON, 20, H

NOTICES TO CORRESPONDENTS

LA CONCEPTION GOLD MINING COMPANY.—Can some correspondent give me any information respecting the above? I, although a subscriber, have heard nothing since the list of contributors was settled on July 24, 1882. Any information through the medium of the Journal will be gratefully received.—A. McDougall.

PORCELAIN MANUFACTURERS.—Will some correspondent be good enough to give me a list of porcelain makers or firms, or any who are the users or consumers of potters' ore, blue lead galena. When will Hunt's Statistics be out?—W. B.

Received.—"J. W. H." (West Caron): Sharedealers' advertisements are charged 5s. for eight lines and 8d. for each additional line; if you send remittance with the advertisement it will be inserted.—"J. G." (Safron Wallenden): If you pronounce the Organos accounts unsatisfactory it must be from not having read them. If you suppose that persons circulate condemnatory circulars for any other object than to buy in shares which they have oversold it says little for your business capacity.—"T. P. N. B." (Great Grimsby): No one can give certain information as to any mine. Read preceding reply which applies equally, so far as circulars are concerned, to the mines you mention.—"V. B." (Dublin).

THE MINING JOURNAL,
Railway and Commercial Gazette.

LONDON, JULY 21, 1883.

CARBONIC ACID GAS IN MINES.

A few days ago it was stated that three persons were seriously injured by after-damp in a colliery in Scotland, caused by a slight explosion of gas. Most persons connected with coal mines are tolerably well acquainted with carburetted hydrogen gas, or fire-damp, but they do not know so much about the other gases which accumulate under ground, or even the after-damp. After an explosion, or in case of a fire, there escapes a mixture of carbonic acid, carbonic oxide, sulphurous acid, and carburetted hydrogen, which spreads itself over the whole of the working parts of the mine through the fissures of the earth or the barrier which divides the part of the fire from the rest of the mine. The carbonic acid also plays a most important part underground by itself, for it is found in all mines, and as a fact not generally known it may be said that it has been known to suddenly burst out in large quantities and killing everything within its range. It supports neither combustion nor life, lights being extinguished in air mixed with one-tenth of it. The gas acts on persons in the manner of poison, and as soon as it enters the atmospheric air by more than 8 per cent. there is danger of suffocation, persons who inhale it are stifled in a short time, but where they have been in it for a brief period they may be brought to life slowly.

Remedies, however, must be applied with great promptness, for the later they are in being employed the more there is to fear that they will not be efficacious. With respect to excavations in which the air is constantly renewed, and in the galleries of mines in general, carbonic acid gas is continually formed in more or less quantities, according to circumstances, so that it is necessary that the ventilation should be sufficient to draw it constantly away, and to keep that quantity which is mixed with the air in all parts of the workings beneath that limit beyond which it would become injurious to the health of the miners. But it is to be feared that carbonic acid gas has more to answer for than it is generally credited with, for it is not looked upon as being really dangerous, and it is consequently not so much looked after. Owing to its great specific gravity it has a tendency to accumulate in greater quantity in the lowest part of the workings of a mine, notwithstanding the fact that all gases possess the property of intermixing with each other, despite the difference in their specific weight. Few, even of our mine managers, however, are aware that carbonic acid gas has been known to suddenly burst out in vast quantities, destroying every living thing within its range. There is a case recorded and translated from the French by Mr. GREEN, M.A., in which there was a sudden outburst of carbonic acid gas of immense volume, which exploded with a loud report as if shot had been fired. This strange occurrence, and the circumstance which accompanied it, shows that there is another source of danger to be apprehended in mines in addition to those already known. It appears that at the place alluded to there was a considerable expansion of carbonic acid gas, which was found at a high pressure in the bed of coal, and which had made an irruption in the right hand side of a drift by bursting the coal face, breaking and bursting to a considerable distance the coal which contained the gas. No doubt was entertained that the gas was carbonic acid, as it was recognised as such by the chief engineer and the workmen, and the extinction of all the lamps plunged into the air vivified by the gas, being a most certain characteristic of carbonic acid.

The gas, on several occasions, had filled the galleries and driven out the workmen and killed one man. The question that naturally arises is as to what was the state of the gas shut up in the coal. It was at first thought that there had been an explosion of gas, but this was found not to have been the case, as the men descended with naked lights, and there was no explosion. This outburst of carbonic acid gas was similar in every way to the outbursts of gas which take place in the county, and show that it is liable to spontaneous disengagements of extraordinary violence. It appears to have left the coal in the case alluded to, and spread itself in the atmosphere of the mine. The mine, it appears, was sunk upon an anticinal, the shaft going directly through the fault in the axis itself, so the circumstances are, perhaps, peculiar. It might be that the gas was due to the anticinal axis. Under any circumstances, the gas must have existed under great pressure, and, being most elastic, have been compressed into a comparatively small space. The carbonic acid gas, it may be said, is more dangerous to human life than the carburetted hydrogen, so that it is most desirable that those connected with mines should be well acquainted with its properties and peculiarities. As it is, therefore, it is evident from what we have stated that there is a good deal yet to be learned concerning carbonic acid gas.

MINERS' DEMONSTRATIONS.

During the last week three great gatherings of miners have been held, attended by many thousands of workmen and their families. Some years ago when miners' demonstrations were initiated, they were principally for the discussion of trade and social questions, but now the political element appears to have taken the place of all others, so that pleasure and profitable information are not now the essentials obtained by those who attend these annual gatherings. This appears to have been the case at the demonstration on Friday last in the Forest of Dean, where Mr. BRADLAUGH was the principal speaker. It was the rule at the meeting at Durham, on Saturday last, and again at Barnsley, on Monday, when Mr. BRADLAUGH was the leading orator. As it was at Barnsley that the proposal to restrict the production of coal so as to raise its value and the wages of miners as well, it was expected that the author of the proposal which was to revolutionise the coal trade of the country, would specially refer to it. But such was not the case. During the agitation the miners were told that they had only to join the associations and contribute the money, when restriction would become the rule, and more wages received for five days' work than they had been getting for six days. The bait took remarkably well, and in the West Riding alone some thousands of miners were induced to belong to the Association. When this was accomplished little or anything was heard about limiting the production of coal, for it was evidently found to be an impossibility. But the great object was attained of numerically and financially strengthening the Association, and making the salaries of the officials a greater certainty than they were before. The question of restriction was certainly introduced in a resolution in a most ambiguous and illogical manner. It stated, "That

this meeting is sorry to learn of the partial failure of the project for the restriction of the output of coal in the United Kingdom, but again affirms its conviction that over production is one of the greatest evils in the coal trade, and allows unfair competition, and causes low prices and wages." One is at a loss to find out how the meeting, the first of the kind held for several years, could "again confirm its conviction" as to over-production, and those who are acquainted with the coal trade will fail to understand what is meant by "the partial failure of the project," seeing that it has not been adopted in any district.

It is quite true that the men in several counties are only working four and five days a week; but this is entirely owing to the state of trade, whilst wages have been going down instead of upwards, to the serious loss of the men. There is, however, a singular addition to the resolution on the question of the limitation and over-production of coal, and it is clothed in rather peculiar phraseology. It states that—"We, therefore, pledge ourselves not to lose sight of the great destroyer of employers' and workmen's interest, believing that its removal would bring greater prosperity to those engaged in the production of coal." All, therefore, that the miners have had for the money paid by them to the Association on the belief that the promise held out as to increased wages for less work is the assertion that the question of limiting the output of coal will not be lost sight of. If the miners are satisfied with so very little for their money then others have no ground for complaining. At the same time, it would be well were the miners to recognise the fact that the general limitation of the production of coal is simply an impossibility, and this their leaders must be fully aware of. At the same demonstration a resolution was passed in favour of the Employers' Liability Amendment Bill, the second reading of which, it will be recollect, was defeated by an overwhelming majority of the House of Commons about a fortnight ago; but this, of course, was unknown to the mass of miners who were present, but it was evidently put down for the purpose of swelling the working side of the programme, which was particularly meagre, but which included the statement that for the purpose of obtaining future beneficial Acts of Parliament in the interest of the mining body there must be strong and wisely-conducted organisations; and a pledge was given to make the Yorkshire Miners' Association as strong and useful as any in the United Kingdom. Of course, the stronger the Union is, financially at least, so much the better for the officials who have to organise conferences to be held in different parts of the kingdom for impossible objects, as was the case with respect to the question of the limitation of the output of coal which led to the meeting of delegates at Birmingham, Manchester, Leeds, Barnsley, and Rotherham, but which resulted in leaving matters just as they were.

At the Durham demonstration Mr. COWEN addressed the vast gathering principally on the Corrupt Practices Bill, and the benefit the country would derive from the infusion of more working men in the House of Commons. Mr. O'CONNOR POWER, M.P., followed the able member for Newcastle, confining himself almost exclusively to an explanation of the law of primogeniture and entail. This is about the last subject one would have thought the working miners were even remotely interested in. There are very few of them we fancy who are beneficially interested in real estate, or are likely to be, or who are likely to leave any behind them. At both Dean Forest and Barnsley Mr. BRADLAUGH referred to the taxation of the country in favour of labour representation in the House of Commons, and the right of constituencies to nominate and elect any person who was free from crime. It will be seen, as stated earlier on in this notice, that the practical working subjects which were formerly discussed at miners' associations have been superseded by those of a political character—a change which we do not think at all beneficial to the miners of the country.

GOLD MINING IN THE TRANSVAAL.

The great and increasing importance of the Transvaal as a centre for gold mining operations has been illustrated very forcibly during the past week by the exhibits of auriferous quartz and alluvial deposits which have been on view at the offices of the Graskop (Transvaal) Gold Mining Company, at 31, Lombard-street. Before referring more particularly to these exhibits it may be well to notice briefly the situation and geological characteristics of the property which has recently been acquired by the Graskop Company. The estate is a very extensive one, the superficial area being slightly over 10,000 English acres, its altitude varying from about 4500 to 6500 ft. above the level of the sea. It is situated in the heart of the Lydenburg district, about four miles from the mining town of Pilgrim's Rest, and is surrounded by properties the value of which has been abundantly proved—such as Lisbon, Berlin, and Spitzkop. The varying altitude of the Graskop estate is an advantageous feature, as, owing to that fact, a large portion of the exploration will be effected by means of open cuttings, and by mining of the simplest and cheapest kind. Reports of a generally highly favourable character have been made on the property by Mr. A. C. Crutwell, F.G.S.; Mr. E. J. Dunn, late Geologist to the Government of Cape Colony; by Mr. John Webster, M.E., and by Messrs. Rickard Bros., the well-known mining experts. Without going into the details of those reports we may quote the following description by the Messrs. Rickards of the chief characteristics of the mine:—" (a) The diffusion of the gold, or in other words the abundance of the material. (b) The free nature of the gold, due to its disassociation with sulphides or other substances which so frequently render its separation difficult and wasteful. (c) The soft or easy nature of the rock and matrix, favouring rapid development and cheap mining and milling. (d) The presence of a good water supply, which our agent assures can be relied upon throughout the year to furnish milling power to the extent of 100 tons per diem. (e) The generally favourable conditions as to climate and labour, the uplands of the Transvaal being very healthy, and native labour good at low rates."

The mine has been amply tested, as eight claims on as many reefs have been worked to a greater or less extent; and although the system of development—if such it can be called—has been of a very primitive character—the results obtained have been highly remunerative. With proper appliances it is estimated that a yield of from $2\frac{1}{2}$ to 3 dwts. of gold to the ton of quartz extracted will cover the costs of returning the metal; and as the average yield is stated to have been something over 1 oz. of gold to the ton, there is reason to believe that very satisfactory results will be obtained. The strata is composed of metamorphic rocks, the principle formations being sandstone, clay, and talcose slate, broken through in many places by intrusive rocks of diorite and basalt. The quartz reefs vary in thickness from a few inches to 20 ft., the two principal reefs having a width of 5 and 20 ft. respectively, these latter reefs having a dip of about 40°, and being reached within a few feet of the surface. A large number of smaller veins have been traced at surface for 400 or 500 ft., and several test workings have been carried on, resulting in gold being yielded in every case. The alluvial deposits are described by Mr. Webster as being 3000 ft. in length and 1800 ft. in width, which by an average depth of 10 ft. would represent a total of 2,000,000 cubic yards.

With reference to the samples of quartz, alluvial sand, and debris which have been exhibited, it is only natural to suppose that in selecting the samples for exhibition and assay care was taken that they should not unfavourably represent the worth of the property; but we were assured—and there is every reason to believe the assurance—that the specimens were fairly selected, and that while poorer pieces of quartz could have been submitted, very much richer stones than any of those exhibited might have been shown. The samples were arranged in four groups, the first containing a large number of pieces of quartz picked up indiscriminately; the second consisting of selected stones; the third of bags of pulverised rock, portions of which have been assayed; and the fourth having several specimens of the alluvial deposits, and some very tangible results in the shape of two weighty lumps of nearly pure metal taken from the bottom of the retorts, and a bar of fine gold weighing nearly 32 ozs., and representing a yield of about 2 ozs. to the ton of quartz treated—a result which is highly encouraging, when it is remembered that with the primitive appliances in use a large percentage of the valuable portion of the quartz must have escaped. The rock is of a very friable na-

ture, and much of it can be crumbled with the fingers. In many of the samples, which were taken indiscriminately, gold was visible, while in the selected pieces the precious metal was always present in larger or smaller quantities, a good many of the stones showing sufficient metal to yield over 4 ozs. of gold to the ton. The gold generally is very fine, and in many cases it would escape the observation of anybody but an expert; but the series of pan tests made by Mr. Webster were in every case productive of gold. The alluvial deposits seem to be of an exceptionally rich character, and the results of the tests made show that they contain a high percentage of gold; though, of course, until the requisite machinery is put up a large portion of the auriferous matter escapes. Ten samples taken from the bags of pulverised quartz have been submitted to Messrs. Johnson, Matthey, and Co. for assay, with the following result per ton of 20 cwt. of quartz treated:

	Ounces.
No. 1	Gold 2·800 Silver 0·500
2	4
3	0·850
4	2·275
5	2·750
6	2·150
7	1·500
8	0·900
9	1·350
10	2·300

From these assays it will be seen that even the poorest of the stuff submitted would, if the estimates of the costs be correct, leave a profit on the working, while the richest samples would give a result which would be highly satisfactory to the shareholders.

INTERNATIONAL ELECTRICAL EXHIBITION, VIENNA, 1883.

On account of the accumulation of applications, which have risen to 570 within the last few days, the vast rooms of the Rotunda begin to be a little too close. Contrary to the original intention the north-eastern court has also been adapted for placing exhibits. Of the applications mentioned above we only cite those by which the Governments of Foreign States will officially participate at the Exhibition. Such are the Royal Belgian Ministry on Public Works at Brussels; the Royal Danish Navy and War Ministries at Copenhagen; the English Post and Telegraph Administration in London; the French Ministry on War, the Ministry on Public Education, the Ministry on Post Affairs and Telegraphy, and the Police Prefecture at Paris; the Royal Italian Telegraph Administration at Rome; the Imperial Ottoman Telegraph Administration at Constantinople; and the Russian Telegraph Administration at St. Petersburg. Belgium will send the engineer Mr. Eorard to participate at the works of the Scientific Commission, who has been likewise entrusted with the organisation of the Official Belgian Section; further Messrs. Rau and H. Witte, Engineers of the Bridge and Street Department, Roumania will officially send Prof. Bacaloghi and Captain Michel Boteann for studying the Exhibition, and to participate at the Works of the Scientific Commission. From Russia will come the General Telegraph Inspector and Counsel of the State, Mr. Pisarewsky, and the Chief Mechanist and Counsellor of the Court, Mr. Tredemann, sent by the General Direction of the Imperial Russian Telegraphs as delegates. Further is given Mr. Ph. Weltschko, President of the Commission which has been formed by command of the Russian Emperor for the organisation of a Russian section. The Imperial Russian Polytechnical Society will send as delegates to participate at the Works of the Scientific Commission, Messrs. Oreste Danilowitch Chwolson, Doctor of Physics, and Colonel Wead. Takowleff Florenoff, Professor of Chemistry at the Cavalry School of the Emperor Nicholas; as Chief Commissary of the Russian Section Mr. F. L. Crestin, Engineer at the Public Cartridge Factory; as Commissaries the Electrician Mr. A. N. Ludigine, and the Professor of Physics Mr. Tacques T. Kowalsky; and, finally, as Deputy Commissaries Col. Michel A. Saline, Professor of Mathematics in the Imperial Corporation of Pages, Mr. Michel M. Dichenoff, Mine Engineer, and Mr. Sergo Nikolajewitch Stjnanoff, Electrician and Editor of the Russian journal the Electricity. From Turkey the General Post and Telegraph Director Mr. Izet Effendi, who has been ordered by the Turkish Government to organise the Turkish section, has nominated as delegates for the Exhibition the President of the Technical Bureaus Mr. Effendi Lacoine, and his substitute Mr. Raif Effendi.

SOUTH-WEST DISTRICT MINING BOARD.

By order of the Secretary of State the annual examination for granting Certificate of Competency as Colliery Managers under the 26 and 27 Section of the Coal Mines Regulation Act, 1872, was held by the official examiners of this board at the Guildhall Chambers, Bristol, on July 10, 11, and 12:—Messrs. C. A. Harrison, M.E., Bristol; W. Needham, M.E., Newport; J. T. Thomas, M.E., Coleford.

Business commenced on Tuesday (July 10). Fourteen candidates presented themselves, and produced their authorisation from the Home Office, together with their respective testimonials as to their adaptability, sobriety, and general good conduct, and their having had at least five years' experience in connection with coal mines and colliery work. Previous to the examination the applicants have certain written instructions from the secretary relative to the various subjects that would be placed before them, and therewith he is particularly advised that after entry, and previous to proceeding with his examination papers, he must produce sample plan and section of certain colliery workings made by himself, from his own survey, and the surveying book corresponding thereto. Nos. 1 and 14 were careless in this respect, and, consequently, after a few questions they were unfortunately blocked and disqualified. The 12 competitors were then told their respective number on the list, and that their papers would be placed before them in the following order—from 2·30 to 6 p.m.:—

1.—Subject: Arithmetic, 8 questions	110 marks
2.—Subject: Surveying and geology, 8 questions	110 "
On Wednesday (July 11) from 9·20 a.m. to 6 p.m.:—	
3.—Subject: Ventilation, 10 questions	150 "
4.—Subject: Practical mining, 13 questions	195 "
5.—Subject: Engineering, 8 questions	105 "

On the whole 47 questions—each question having a maximum, intermediate, and minimum ratio of merit as 15, 10, 5. The highest standard on every subject being 670 marks; the lowest which would admit the candidate to the *viva voce* or final stage is 330 marks. Nos. 4 and 6 being considerably below this minimum were dismissed. On Thursday, July 12, at 2 p.m., the 10 candidates were admitted one by one so as to test their experience and practical knowledge of mining operations generally by oral proof and demonstration. Providing he is thoroughly up to the mark he may yet score 120 marks, thus making the minimum score for Certificate of Competency 450 marks. Nos. 7 and 9 failed in this respect, but the following gentlemen distinguished themselves remarkably well, and gave great satisfaction to the examiners:—Taliesin Jones, Aberdare, 655 marks; James Jones, Risca, 655 marks; Othwell Hawkins, Pontypridd, 590 marks; Thomas Morgan, Blaina, 515 marks; James Lewis Thomas, Aberdare, 510 marks; Daniel Evans, Penygraig, 475 marks; W. L. Vaughan, Bedminster, 450 marks; David Evans, Ferndale, 180 marks.

On Friday, July 13, at 12 o'clock, the following members of the board met to receive the report of the examiners, and to discuss other important topics which have for some time been under their consideration—Mr. W. B. Nash, Bath, Chairman; Mr. E. Crawshay, Forest of Dean; Mr. C. A. Harrison, M.E., Bristol; Mr. W. Needham, M.E., Newport; Mr. J. T. Thomas, M.E., Coleford; Mr. W. Burchall, miner, Beaufort; Mr. D. Williams, miner, Rhymney; Mr. T. Sedman, miner, Ebbw Vale.

Mr. T. Cadman, Her Majesty's representative for the South-west District arrived early, and received a hearty ovation, each member being glad to see him capable of resuming his position at the board, and trust he may long continue to do so. The Vice-Chairman, Mr. E. J. Grice, Newport, was unavoidably absent. The minutes of the last meeting being confirmed, the board unanimously agreed that

the report of the examiners was satisfactory and highly creditable to the respective candidates, and that each one of the eight be recommended to the Secretary of State as worthy to receive his certificate of Competency as Colliery Manager under the Act.

Resolved—that the next meeting of the board be held at Newport on Sept. 12, at 11.30 a.m. With the usual vote of thanks to the Chairman the meeting closed.

SCOTCH PIG-IRON WARRANT MARKET.

Mr. W. WILSON (Glasgow, July 19) writes:—The upward tendency of the warrant market continued until Thursday last, when the disquieting news from Madagascar increased the desire to sell. The price gave way about 3d. per ton. It would be unfortunate if the buoyancy just beginning to appear after so long an interval of depression should be destroyed by political complications. For the week, notwithstanding the holidays at Glasgow, shipments are satisfactory. An additional furnace has been put in blast at Kinneil, making a total of 114 now blowing. Business was done during the past week at the following prompt cash prices:—

last week at the following prompt cash prices:—			
Thursday, July 12.	Friday, July 13.	Monday, July 16.	Wednesday, July 18.
47/3 $\frac{1}{4}$, 47 $\frac{7}{8}$, 47 $\frac{1}{2}$, 47 $\frac{9}{16}$, 47 $\frac{7}{8}$	No market.	... 1881.	... 1880.
Tuesday, July 17.	Wednesday, July 18.	Thursday, July 19.	47/5, 47 $\frac{1}{2}$, 47 $\frac{1}{4}$
47 $\frac{7}{16}$, 47 $\frac{7}{8}$, 47 $\frac{6}{16}$	47 $\frac{3}{4}$, 47 $\frac{1}{2}$, 47 $\frac{9}{16}$	47/5, 47 $\frac{1}{2}$, 47 $\frac{1}{4}$	47/5, 47 $\frac{1}{2}$, 47 $\frac{1}{4}$
	1333.	1382.	1382.
Price of Scotch Warrants on July 17	47/7	50/8	47/6
Furnaces in blast in Scotland do.	114	108	115
Iron in store at this date.....	581,918	635,285	570,914
Shipments of Scotch pig-iron for week ending July 14.....	12,441	13,136	11,118
Do. since beginning of year.....	339,585	338,636	331,227
Price of Middlesbrough, No. 3, July 17	39 $\frac{9}{16}$	43/0	37/6
Furnaces in blast Middlesbrough dist.	117	119	113
Middlesbrough Iron Imported at Grangemouth, week ending	5,710	5,605	3,575
July 14.....			5,822
Do. do. since beginning of year.....	146,544	120,492	163,624
			128,036

SMOKE ABATEMENT

SMOKE ABATEMENT

A meeting of the National Smoke Abatement Institution was held on Monday at the Mansion House, the Lord Mayor, and subsequently the Duke of Westminster, presiding. There were also present the Duke of Northumberland, the Right Hon. G. Cubitt, M.P., Sir Spencer Wells, Sir William Siemens, Sir Frederick Abel, Sir Lyon Playfair, M.P., Sir F. Pollock, Colonel Makins, M.P., Mr. T. C. Horsfall (representing the Manchester and Salford Noxious Vapours Abatement Association), Dr. Farquharson, M.P., General Lowry, C.B., Colonel Fraser, C.B., Dr. Sedgwick Saunders, Mr. Ernest Hart, Mr. Waring, and Mr. G. Shaw, M.P. The report, which was read by Mr. Ernest Hart, the Chairman of the Council, stated that evidence received from many quarters went to prove that the smoke of large towns directly increased the rate of mortality, caused serious damage to property, and involved large expenditure in various ways. The Institution had held a successful exhibition of smoke preventing appliances at South Kensington, which was followed by a similar and equally successful one at Manchester, under the joint auspices of the Institution and the Manchester and Salford Noxious Vapours Abatement Association. A volume of reports on both exhibitions had been published. It contained details of the various tests of apparatus with illustrations, also reports on the chemical aspects of the smoke question. This report had had a considerable circulation and had received favourable criticism both at home and abroad. After showing the marked discrepancy between the respective efficiency of various kinds of apparatus, the report proceeded to state that a great benefit resulting from this public movement has been the greatly increased use of gas and coke for heating purposes. Marked improvement has been made in open grates and stoves for

Marked improvement has been made in open grates and stoves for burning smokeless coal, and one firm alone which exhibited at South Kensington a cheap stove of this class has sold 14,000 of them within two years, thus proving that the public are to a large extent willing to burn smokeless coals if they get suitable stoves at a reasonable price. The report further stated that the use of gas for heating steam-boilers had considerably extended during the past year.

Another mark of progress was afforded in the improved manufacture of coke. The improvement of various forms of mechanical stokers had caused an increased use of them for boiler furnaces, and the Council had been informed by some of the largest manufacturing firms in the Midland Counties and elsewhere that their use had been attended with considerable economy in fuel and labour. The pottery, glass, and brickmaking trades have been considerably benefited by improvements in furnaces brought into notice at the South Kensington and Manchester Exhibitions. Noteworthy progress had been made in the extended use of ordinary coal gas to many trade processes carried on in towns, such as at bakeries, &c. Arrangements had been made in conjunction with the Gas Institute for further tests of all the heating and lighting burners recently exhibited at the Crystal Palace. The report concluded with a statement of the unsatisfactory administration of the law relating to smoke, reiterating that ample proof was available that smoke could be to a greatly increased extent abated, if not entirely prevented.—The Duke of Westminster, in moving the adoption of the report, stated on the authority of experts that the waste in London alone from excessive smoke production amounted to a million a year, and the damage done in various ways by this smoke might be estimated at two millions extra.—Sir Spencer Wells, surgeon to the Queen, seconded the motion, and stated that he did not believe the supposed good arising from the antiseptic property of smoke had any foundation in truth. He believed there was no possible good in smoke; it was an unmitigated evil.—The Duke of Northumberland, in proposing that a Royal Commission should be appointed for the purpose of enquiring into the best scientific means of promoting an abatement of the nuisance and into existing laws affecting the subject, remarked that in his opinion they could only hope for amelioration of the nuisance by influencing public opinion, as it was a difficult subject to legislate upon. There were great anomalies in the administration of the law, and the discrepancies between the amount of fines inflicted was remarkable. In too many cases in provincial districts the magistrates were too much interested in the matter to allow them to be very severe on offenders.—Sir William Siemens insisted upon the superiority of gas over solid fuel.—Amongst the succeeding speakers was Mr. T. C. Horsfall, of Manchester, who testified from experience of the work of the Manchester and Salford Noxious Vapours Abatement Association—a kindred society—to the utility of the work of the National Institution and its claims for support.—Votes of thanks to the Lord Mayor and Duke of Westminster terminated the pro-

ENGINEERING EXHIBITION AT THE AGRICULTURAL HALL.—A novel invention of much value to engineers may be seen at the Agricultural Hall, Islington, Stand 381, E. PENNING and CO. It consists of the most simple packing for steam, hydraulic, or air pipes, though requiring less material for a perfectly hermetical joint than any at present in use, whilst it has been certified by Sir W. G. Armstrong to have stood the enormous pressure of 4000 lbs. per square inch. Chipping or springing of pipes is by this system entirely dispensed with. By simply unscrewing the flanged bolts all removals or renewals can be effected in a few moments. Those interested should either see the joints at the exhibition or at the office, Abingdon-street, Westminster.

SOCIETY OF ENGINEERS.—The members and associates of this society, to the number of about 40, visited on Wednesday the Thames Ironworks and Shipbuilding Company's yard at Blackwall and the works of the Gas Light and Coke Company at Beckton. This was the second of three excursions arranged for the instruction and amusement of the members of the society. The first excursion was to Swindon, and the next will be to Brighton. The party on Wednesday went to Blackwall and Beckton, by special steamer. At the former place they were shown over the ironworks by Mr. Hill, managing director, and at the latter Mr. G. C. Trewby, C.E., Engineer-in-chief to the Gas Light and Coke Company, acted as *cicerone*. In the evening many of the members and their friends dined together at the Guildhall Tavern, in Gresham-street, under the presidency of Mr. Jabez Church, F.G.S., there being also present Mr. C.

Gandon (Vice-President), Mr. R. Berridge, Mr. A. F. Phillips, Mr. W. Schönhieder, Mr. W. Macgeorge, Mr. J. Bernays, Mr. H. Hardy, Mr. A. Williams, and Mr. Bartholomew Reed (secretary).

THE ROYAL SHOW AT YORK.

MACHINERY IN MOTION

Those whose business requires that they should take an interest in pulley-blocks, hoists, and winches will find a large display of such appliances at the stand of Mr. Jonathan Pickering, of Stockton-on-Tees. Amongst his new implements is a hoist with sustaining brake for 5 cwts., and with chains for a 20 ft. lift. The brake is fitted with a check arrangement, so as to sustain the load. He has also a new standard hoist with cage for 5 cwts. This sustains the load either in lifting or lowering, without the aid of any brake or ratcheting cord. A standard hoist for 3 cwts. with barrel, suitable for grainery or malting, and a bracket winch for $3\frac{1}{2}$ cwts., which sustains the load and whose handle cannot fly round, also claim attention as new implements. Steam-pumps are shown by Messrs. Hayward, Tyler, and Co., London. One of them is capable of raising 18,000 gallons of water per hour, another 7000 gallons per hour 200 ft. high, and a third will feed a 40-horse boiler with hot water. On the same stand are two hot-air engines; the one capable of raising 600 gallons of water per hour 70 ft. high, and the other suitable for pumping from deep wells. The Rider patent household pumping-engine, actuated by hot-air, is one of the chief features of the stand. It is an ingenious and simple little apparatus, and is very extensively used by country gentlemen in raising the water required for the use of their houses and gardens. There are no valves and no pistons in the construction of the engine. Steam-engines also form a part of the exhibits. A neat vertical engine drives one of the Diamond type of double-acting pumps. Another, a small horizontal engine of the Bramah type, is also on this stand, but not at work. The well-known stone-breaker, manufactured at the Soho Foundry, Leds, in accordance with the Blake-Marsden patent, may be seen breaking

accordance with the Bingley limestone patent, may be seen exhibiting 6 tons 5 cwts. per hour by 5-horse power. By the side of it is a pulveriser, which will crush about 3 cwts. per hour of all kinds of minerals and ores to any degree of fineness. There is also a stone-crusher on the stand with quadruplicate reversible jaws for reducing stone to fine gravel. Messrs. Bradley and Craven, Wakefield, exhibit a new brick moulding and pressing machine, by which any material capable of being made into bricks can be manipulated, moulded, and pressed in the state of dryness with which it leaves the earth at the rate of 12,000 per day, and the bricks delivered dense enough for immediate transfer to the kilns for burning. They have also a new brick press designed for pressing perforated and other bricks made by the plastic process. Mr. T. C. Fawcett, of Leeds, has several brick-making machines on view. One of them is new. It makes a brick from shale or clay in a plastic or semi-plastic state at one operation, and it is said to be able to turn out about 12,000 per day. The pug shaft has an intermittent motion, thereby reducing the wear and tear of the machine. He also exhibits a new safety-valve, which blows the steam into a box that communicates directly with the fires, and thereby damps them down and saves fuel, or, if neglected, puts them out. In this way the noisy blowing off of the steam is rendered unnecessary. Another new product of the exhibitor's works to be found on the stand is a coal-baring and shot-hole drill, combined, which is said to do away with the necessity of spragging. A variety of machines for brick, tile, and drain-pipe making, as well as of brick presses, are shown by Messrs. John Whitehead and Co., of Preston. The firm has been very successful in the production of this class of machinery. The catalogue states that the Society has awarded them its first prize at every trial meeting since 1848.

Messrs. Crossley Brothers, of Manchester, have an attractive display of their Otto gas-engines, beautiful pieces of mechanism, and remarkable for their noiseless motion. One of them is new. It is 12-horse power nominal, indicating 30-horse power, and is worked with Dawson's patent economic gas at an expenditure of 1·4lb. of coal per horse power per hour. A straw-compressing machine on the next stand, belonging to Messrs. John H. Land and Co., London, attracts the attraction of a good many visitors. Messrs. J. and H. McLaren, of Leeds, exhibit, amongst other implements, four new traction engines, which are more particularly noticeable on account of the firm's new patent spring arrangement, whereby the jar of the engine over rough roads is greatly reduced and a saving of wear and tear effected. They also show the original pair of spring wheels, which they say have passed over about a thousand miles of the roughest roads in England. An implement which will no doubt receive the attention of farmers is a new horse hoe, shown by Messrs. S. Corbett and Son, Wellington, Salop. It is somewhat different in design and construction from other implements applied to the same purpose. Wrought-iron cutters with upright arms are entirely dispensed with, a cast-iron skim turned up at the sides being substituted. It is claimed that by this contrivance blocking or choking is impossible. The skim is cast in two parts, and may be made to suit any width of ridge, and the edge of the cutting surface is serrated instead of plain, thereby causing it to take firm hold and cut off any thistle or other strong weed with which it may come into contact. The pitch of the frame can be immediately altered when the point becomes worn without moving the wheel, and the scuffle runs steadily. Another important feature is a revolving barrow, which forks out all the weeds and rubbish, and leaves them on the surface quite loose and exposed. By this means also the draught of the implement is considerably reduced, and the work more cleanly done, as the rubbish is not gathered and deposited in heaps. The same firm show a new combined disc root cleaner and pulper. It removes the dirt or small stones from the roots before they are conveyed to the pulper, and is constructed to prevent breakages in case of stones being thrown in with the roots. It is said to save a good deal of time. The 'Woolly' is a new implement for the cleaning of flax, and is a very interesting machine.

deal of labour. Two appliances to be seen in operation at the stand of Messrs. Long and Apkin, Bristol, will interest brewers. The one is a combined gyle-rouser and aerator, and the other a combined attenuator, automatic gyle-rouser, and aerator. Great advantages are said to be secured by the use of them.

In fact, which prevents the steam and moisture from passing away, as it is produced. It is simply heated and a great part of the moisture retained and absorbed into the wheat or other grain after passing into the sacks. Immediately the steam is produced from the grain by the heat of the tubes, it is drawn away by the suction fan at the discharge end. This fan has a direct communication through the centre of the steam chest into the revolving cylinder, as shown by the transit of the arrows into the fan. The outer eye draws a current of air through the grain as it falls down the discharge spout, drawing with it light particles and unsound grain. The power of the fan can be reduced simply to draw away chaff and dust. The next stand, occupied by Messrs. Thomas Robinson and Son, Rochdale, will also interest millers. They exhibit a newly designed double roller mill, the hopper of which is so arranged that when the flow of middlings becomes excessive, the feed on to the rolls is increased, thus preventing the hopper from becoming choked, and thereby rendering the feed completely automatic. The feeding apparatus is so connected with the rolls that by simply moving a lever the latter may be drawn apart and the feed stopped instantaneously. The rolls themselves can readily be adjusted to the greatest nicety. Alongside of the machine is another new one—a double height roller mill, with improved automatic feed. Here the rolls are placed one above the other. This system is said to be well adapted for smooth rolls when great pressure is required. The hopper arrangement is the same as in the other, and the top rolls are capable of a nice adjustment. Other appliances for use in the corn mill are shown at the stand of Messrs. W. R. Dell and Son, of London. One of them is called the Rounds sectional roller mill. The advantage claimed for it is that it is perfectly automatic, and, though on a small scale, may be worked as economically as the largest mill. It is adapted to making the higher qualities of flour, and by means of it the English miller is enabled to compete against the Hungarian and better class American flour without going to the expense of altering his mill generally. The firm also exhibit a machine designed for the separation

tion of small stones, gravel, &c., from wheat and other grain. A new bran roller mill is shown by Messrs. Hind and Lund, Preston. They say that with it millers may grind with stones much higher, make more perfect middlings, and a superior quality of flour; also that the product from the rolled bran is of a superior kind. By a peculiar device each flake of bran is conducted in a flat position between the points of contact of the rolls, thereby giving a large percentage of the product from the rolled bran in middlings, and at the same time keeping the bran broad. Several other new appliances for similar work are exhibited by Mr. C. Hopkinson, of Retford. These comprise three flour-dressing machines, a sieve purifier for middlings, two rolled mills for middlings or bran, a roller mill for cracking wheat, and a separator and duster for offals. Messrs. Wm. Gardner, Gloucester, show various improvements in the Odell roller mills, including a noiseless belt driver, so arranged that the machine can be instantly stopped by means of tightened pulleys; devices for simultaneously spreading the rolls apart and shutting off the feed by a single movement of the lever; and an arrangement of tie rods made in two pieces, connected by a barrel containing the tension springs, whereby the latter can be so adjusted as to give the desired pressure and elasticity to the rolls, and the adjustment retained without being affected by the subsequent sitting of the rolls. A new grain-cleaning and drying apparatus is exhibited by Mr. E. Keighley, of Scarborough. It consists of a vessel, 6 ft. in diameter, made to revolve in a diagonal position on an axis, and steam and hot air are admitted into hollow appliances inside, amongst which the grain is constantly rubbing. An improved portable grinding mill, which it is said can be more easily adjusted than similar appliances, is shown by Messrs. Teesdale Brothers, Darlington. Messrs. Robey and Co., of Lincoln, exhibit what seems a very substantial thrashing machine. The frame is of wrought angle iron on a trussed principle; it is thereby stronger than any wood frame, truer and more rigid, and not so liable to be strained or twisted in travelling over rough roads.

Messrs. Priestman Brothers, Hull, show in operation their dredger excavator, and elevator; it is self-propelling under its own steam. They likewise exhibit in working order the dredger they have specially designed for cleaning lakes, ponds, and for deepening small streams, ditches, &c. Messrs. F. and J. S. Bust, of Winterton, Brigg, show their new portable ensilage cutter, and also a new appliance for evenly distributing salt on chaff as it falls into bags. It is intended to be fixed on to the elevators of a chaff-cutting machine, and is so arranged that it can be put in and out of gear without stopping the machine. The firm have also provided a new elevator for delivering prepared chaff into the floors of barns and chaff houses up to 15 ft. high. They have likewise on view their diaphragm and valve for stack cooling. By means of it the operator may concentrate the whole power of the fan on the lower and most solid part of the stack. The York Engineering Company exhibit a differential rotary apparatus for blowing, exhausting, and ventilating. It is said to be suitable for the delivery of large volumes of air or gas either at high or low pressure. Some new screwing and tube-cutting machines are shown by Messrs. John Cowley and Son, of Hyde. Messrs. Newton Chambers, and Co., of Thorncliffe, are exhibiting their well-known cooking ranges, as well as several garden rollers.

THE MINERAL RESOURCES OF IRELAND

The exceedingly questionable policy, if not absurdity, of attempting to remedy the present evils of Ireland by encouraging emigration has been more than once affirmed in the *Mining Journal*, and the more experience is gained the more the accuracy of this view becomes evident. That the Keltic race are more excitable, and more easily excited, than the Teutonic can scarcely be questioned, but it would be difficult to find any more ready than the Kelt to appreciate and reciprocate kindness and straightforwardness, or more willing to labour hard for reasonable remuneration. He is only difficult to keep within the necessary rules of discipline when placed under the control of those who are incompetent to manage labourers of any class, and under an intelligent employer he can quickly be made the most desirable and agreeable of workmen. Had but one-half of the capital that has been expended during the past half-century in assisting emigration been judiciously applied in the development of the mining and industrial resources of the country there can be no question that long ere this Ireland would have been in so prosperous a condition that the agitators who have preyed upon the weakness of Irishmen, and reduced the country to a condition that has rendered exceptional severity indispensable, would have found so few to listen to their dangerous falsehoods and promises which they never intended to fulfil that they would speedily have had to abandon the nefarious profession, and to earn their livelihood by the more honest and honourable use of their intelligence. Whether the false steps that have been taken can be retraced, and those of Irish extraction induced to return to Erin to give her the benefit of their capital and experience is, perhaps, more than doubtful, but surely it would be more conducive to the happiness and prosperity of the country to subscribe to some well-devised project for turning the immense resources of Ireland to good account than to give the same amount for the support of criminal agitation which prevents outside capital being applied to Irish industrial enterprise, and has led to the legal sacrifice of the lives of many men who with better training might have used their courage to have secured them an honourable place in society.

The South of Ireland presents an enormous field for mining and industrial enterprise, although even the undertakings which have proved themselves capable of yielding remunerative interest upon capital expended upon them are at present in abeyance, so that it is gratifying to find that in Guy's Descriptive and Gossiping Guide to the South of Ireland (Cork: Francis Guy, Patrick-street) - an exhaustive and entertaining little volume - the geology and mines receive full attention. In extent of surface it is remarked, Cork is the largest county in the United Kingdom, except that of York. Its greatest length (east and west) from Youghal Harbour to Darsey Head, 110 miles; its width from the Old Head of Kinsale to Charleville, 56 miles; its area 2700 square miles. It is bounded on the north by Limerick, south by the Atlantic, east by Tipperary and Waterford, west by Kerry.

The lowest silurian is the oldest geological formation that has a surface exposure in Cork, an area of about $4\frac{1}{2}$ square miles occurring on the northern boundary, on the south-west of the Galtee Mountains. The old red sandstone strata, consisting of red and yellow sandstone and slate, covers about half the area of the county, the largest band of it stretching continuously from Dursey Head to Mine Head, which are in the county of Waterford. Sections about the southern part of the Pass of Keim-an-eigh show a thickness of 9800 ft. of this strata. The glaciated district of Glengariff is an interesting one for geologists. From base to summit up along the towering mountain sides are pitched huge boulder stones, most of them grooved and scored and moulded as if by contact with moving ice. The traps or igneous rocks in Cork are of small extent, but of great interest, especially those in the neighbourhood of Bere Island. The West of Cork is abundantly traversed by metalliferous veins. Copper is worked in the Berehaven Mines at Allihies, and in the vicinity; lead is found also in that neighbourhood. Copper occurs near Glengariff, near Bantry, and different places out toward Sheep's Head (with green carbonate of copper or malachite); near Dunmanway, on the north-west side; in several places about Ballydehob and Schull, not only on the mainland but on the islands (with green carbonate); about Crookhaven (with silver-bearing lead); near Three-Castle Head; near Castletownshend (with lead and antimony); near Rosscarbery (with manganese); near Clonakilty (with lead); near Rathpeacon, two or three miles north-west of Cork (traces of green carbonate); at Knockadoon Head, near Youghal; and near Millstreet. Sulphates of barytes occur near Schull, Rosscarbery, Bantry, Clonakilty, &c. Lead also occurs at White Ball Head; near Bantry (but in a different locality to that above referred to), sometimes argentiferous; near Leap (with iron); near Minane; at Ringabally Bay, argentiferous; near Carrigaline; near Carrigwillih; on the coast just opposite Youghal (in County Waterford); and near Carysville, about three miles eastward of Fermoy. Manganese is to be obtained near Rosscarbery, where it is especially abundant and pure, and worked on a small scale: Castlevanty, Nohoval &c.

ron seems to have been extensively worked in various places in former times, as at Coomhola, near Bantry Bay; at Aghadow, near Roaringwater Bay, and at several other places on the coast; at Downdaniel, on the Bandon river; at Araglin, about eight miles north-east of Fermoy; at Tallow, and elsewhere.

The works were abandoned when the natural woods, which supplied the fuel, were used up. The metal, being smelted with wood, was of excellent quality, and esteemed equal to Swedish iron. In Bere Island there is specular iron ore. In the Schull district iron occurs in nearly all the quartz veins and strings, generally micaeaceous ore or red hematite. It is found as mundic (iron pyrites) in some of the lodes in that vicinity, and also near Dunmanway. It occurs also as bog iron ore. In this country iron is generally found within short distances of large peat bogs, which only require to be converted into condensed fuel and charcoal to make the manufacture of iron and steel again profitable. Coal is plentiful in the district around Kanturk. Anthracite, sometimes containing iron pyrites; cullum, a laminated coal, crumbling down on exposure to the air, used for burning limestone; and pindyl, a shale sometimes sufficiently carbonaceous to be used as fuel. Ironstone and wavellite also occur. All the marbles of this county are of the variegated kind, of which there is a great variety. Deep black, near Churchtown and Donegale; purple and white, at Churchtown, near Michelstown, Little Island, and near Midleton; blue and white, near Churchtown; yellow and purple, near Michelstown; grey, Carrigaline, Castlemary, Cloyne, Shanballymore; blue and white, Castlemartyr; pale brown, Kilcrea. In the manufacture of mantelpieces, fenders, slabs, tables, tiles, columns, &c., as well as every description of monumental and ecclesiastical designs, the numberless varieties of marble of this county could be blended together in an endless variety of attractive contrasts.

The utilisation of the enormous water-power, now running almost to waste, would reduce the cost of manufacture to the smallest dimensions. Slates for roofing, near Bandon, Durrus, Bantry, Schull, Innerskerkin, Drimoleague, Dunmanway, Glandore, Rossbarry, Galley Head, Clonakilty, Timoleague, Kinsale, Old Head Kinsale, Nohoval, Ringaballa Bay, &c. The slates in the neighbourhood of Bantry are the exact counterpart of the Welsh. Slate quarries are worked near Rossbarry. Of the other useful products the principal are—limestone, flags, clays for pottery and brickmaking, fuller's earth, ochres, magnesia, peat, calcareous sands for manuring land, sands for building purposes, &c. The mineral waters are mostly chalybeates (as near Castlemartyr, Bandon, Kanturk, Macroom, and elsewhere), and the thermal springs about Mallow.

The West Cork mines and mineral deposits are very ably treated of by Capt. W. Thomas, M.E., an old and valued correspondent of the *Mining Journal*, and a sound authority on Irish mining matters, who states that in the western part of the county of Cork there are four great bands of parallel lodes and veins, or copper zones, running inland in an east and west direction. At the Browthead commences the south parallel range of lodes, which are traceable to Roaringwater, a distance of about 20 miles. This great band of copper lodes is seen not only in the cliffs at Browthead, but also at Crookhaven, South Schull (where valuable beds of ochre and peroxide of iron occur), Coosheen, Ardentenant, Dereenatratra, Ballycumisk, Cappagh, Kilcooe, and Roaringwater. The ores of this district yield a high percentage of copper, cargoes of which having been sold in Swansea at 38*l*. per ton, and some of the lodes yield from 26 ozs. to 40 ozs. of silver per ton of ore. At Coosheen Mine, remarkably valuable and beautiful specimens of "malachite" were found—these were quite equal in value to Russian or Australian malachite. At South Schull, in the cliff at the west side of Schull Harbour, there is a valuable freestone quarry, the colour and quality of which is equal to Bath stone. From partial and superficial trials made at the Browthead, Crookhaven, Coosheen, Dereenatratra, Ballycumisk, Cappagh, Kilcooe, and Roaringwater, copper ores were raised and sold of the value of 150,000*l*.; but at present, from causes which need not be mentioned, none of these mines are being worked. Here is a legitimate field for the profitable investment of capital. This great copper zone, if judiciously, perseveringly, and economically worked, would yield a vast amount of wealth, and give reproductive employment to the surrounding labouring population.

The second parallel range begins at the Mizen and Three-Castle Heads. The outcrop of a large copper lode is seen at the Mizen Head, and superficial trials were made long ago on it, it is said, by the late Colonel Hall. The outcrop of lodes are also seen at Three-Castle Head. Those are traceable inland, and at the north side of Mount Gabriel, at Letter; they were opened slightly by Colonel Hall, and copper ore and green carbonate of copper discovered. Still further east in this mineral range, near Ballydehob Church, a mine was also opened by Colonel Hall. About a mile to the north-east of Mount Gabriel, on the western slope of Mount Corin, on the property of the Earl of Bandon, there is a valuable mine of the sulphate of barytes; it occurs commercially pure, yielding 98 per cent. of baryta. This article, when ground to an impalpable powder, is largely consumed by cotton manufacturers, by paint and colour makers, who mix it with lead and zinc in the manufacture of the most permanent white known, and by makers of paper, porcelain, pottery, plate-glass, and chemicals. Splendid mirrors may be seen at Castle Bernard, which were manufactured from the produce dug out of Lord Bandon's barren rugged mountain at Dereenolomane.

These works are now in active operation by English capitalists, under the superintendence of Capt. Wm. Thomas, and machinery is about being erected for grinding and manufacturing the article on the spot. This will afford employment to all the people of the district. The third parallel copper zone begins at the Sheephead, which divides Dunmanus Bay from Bantry Bay, east of which, in the Kilcrohane mountain range, on the south shore of Bantry Bay, we find the silver-lead mines of Keilovogue and Rooska, which, from limited superficial operations yielded good returns of ore. At Lisheenamig, to the east of Rooska, on the then property of the Earl of Bantry, near the public road, is a remarkable outcrop of a great mineral lode, which contains argentiferous copper ore (true fahlerz), argentiferous arsenical pyrites, and other valuable minerals; the fahlerz ores yielding from 200 to 350 ozs. of silver per ton of ore, and 35 per cent. of copper. The fourth great copper zone begins at the Dursey Head, which divides Bantry Bay from the Kenmare Bay. East of the Dursey Head, at Ballydonegan Bay, is the celebrated Berehaven Copper Mine, which has yielded millions' worth of copper ore. The great mountain range (no doubt full of minerals) east of Berehaven mines is unexplored.

The four great copper zones herein hastily sketched afford ample scope for the safe and profitable investment of 1,000,000*l*. The containing rocks, in which these great metalliferous bands of lodes and veins occur, consist of clay-slate, porphyritic rocks, greenstone formations, oblique lodes, cross-courses, and massive rough slatey grit rocks, quartz veins, massive quartz rocks, with micaeaceous and chloritic schists. These are known and proved to be the most metalliferous rocks in all great and profitable mining districts. The judicious outlay, therefore, of capital is only required to make West Cork one of the richest mining districts in Europe. The natural facilities and advantages for carrying out the works are unsurpassed. Mines may be worked for years without machinery. In West Cork are some of the finest and grandest harbours in the world—rivers running waste into the ocean which might be applied to drive any amount of machinery. A population ready, willing, and anxious to work, and, if employed, would be happy, peaceful, and contented. The writer of this paper has been in contact with the poorest of the working population in the most remote districts of West Cork for over "40 years," and never received insult from man, woman, or child. He has traversed wild and lonely districts at all hours of the night, and never had an idea of being afraid of any man. He is not a landlord or the owner of mines, but from his long experience of

mining in Ireland and different parts of England, he is certain that if the mines of West Cork are honestly and properly developed they will rank in value with the best mines in the United Kingdom. West Cork contains also valuable slate and flag quarries, and sufficient paving sets of the most durable material to pave all the streets in Ireland. There is, therefore, no necessity to send to Wales for paving sets to pave Irish streets.

A romantic walk from Crookhaven to Browthead affords splendid views of Barley Cove, the White Strand and lofty cliffs facing the Atlantic Ocean. Returning from Browthead to Crookhaven, you then proceed by a wild and interesting road by the beautiful Bay of Dunmanus to Durrus, which is situated at its head. Durrus is a neat little village, and under the fostering care of the late Earl of Bandon, became from a few wretched hovels a pretty little town, with a good hotel, dispensary, post office, telegraph office, &c. The drive from Durrus along the shore of Dunmanus Bay, to Kilcrohane, nine miles, and Sheep's Head, 14 miles, is grand and beautiful. A new road has been made from the "Holy Ground," Kilcrohane, winding up the side of Kilcrohane Mountain, on the top of which, 1000 ft. above the sea level, is probably one of the grandest views in Europe. Below your feet is the "Noble Bantry Bay," the broad Atlantic, Sheep's Head, Dursey Head, Castletownberehaven, Bere Island, Adrigole, Glengarriff, Whiddy Island, and the great and grand range of Kerry Mountains. From Durrus to Bantry is six miles. Passing from Bantry to Glengarriff, about half way, at Droumkil, there is a slate quarry at work, and when more extensively opened will, no doubt become a valuable property. This slate and flag quarry is on the property of the Earl of Bantry, and under the superintendence of Capt. J. B. Eddy. The beautiful scenery of Glengarriff has a world-wide fame. The most able writers have failed to do justice to beautiful Glengarriff.

Tourists in general follow the "beaten track," and "do" Glengarriff and Killarney in a couple of days. They have no idea of the beauty and grandeur of the wild and romantic scenery of West Cork. But it may be asked how many thousands are there in the City of Cork who have never seen it? Irish invalids and others go to the South of France, Italy, Algiers, anywhere rather than visit the warm, sunny, and sheltered nooks of West Cork. How, then, can strangers be expected to visit those spots when they are completely ignored by Ireland's own citizens? Strangers or residents in Cork, or other cities and towns, will find excellent roads from Skibbereen to Crookhaven, also good accommodation at Schull, Goleen, Crookhaven, and Durrus, while at the "holy ground," Kilcrohane, delicious sweet milk can be obtained, which, with a dash of whiskey in it after a mountain excursion, is both refreshing and invigorating. Cars, covered and open, can be procured at Skibbereen, Schull, &c. Many parts of West Cork are barren and rocky, but Nature has made abundant compensation in the vast mineral treasures contained underneath a barren surface.

STRIKING OIL.

Mr. E. V. Smalley contributes to the *Century Magazine* a most interesting and instructive paper on the production of oil in America. The known and defined petroleum region in the States is confined, it appears, to a country about 150 miles long, with a varying breadth of from 1 to 20 miles; and the yield from this large area, which in 1881 amounted to 26,950,813 barrels, reached 31,398,700 barrels in 1882. It must not be supposed, writes the author, that the oil-bearing sandstone stratum underlies the whole region. It is found only in spots, patches, and belts, and there are no surface indications to show where it can successfully be sought. The entire productive territory covers an area of only 189,000 acres. The outlines of a producing district are established only by experiment, and new districts are discovered by wasting sums of money on "dry holes." On Oil Creek the first wells struck the oil-bearing sandstone at a depth of 600 ft. In the Butler and Clarion fields the wells are about 1400 ft. deep, in the Bradford field from 1100 to 2000 ft., in the Allegheny field from 900 to 1400 ft., and in Cherry Grove 1000 ft. The variation of depth in the same field is caused by the hills. The oil sand-stratum varies in thickness from 5 to 30 ft. It is thickest in the Bradford field. There it is dark-coloured and fine-grained; elsewhere it is of lighter colour, and more porous.

There are no streams or ponds of petroleum in the earth, as was once supposed. The sandstone is saturated with the oil, and a strong pressure of gas forces the fluid through the porous rock and up to the surface, when a hole is drilled down to it. After the gas pressure is relieved a well is pumped, sometimes for a few weeks only, sometimes for years. Of all forms of property an oil well is about the most uncertain. No one can predict how much it is going to yield, or how long its life will be. Thus the whole business of petroleum production has always rested, and must always rest, upon a basis of speculation far more venturesome and less stable than is known in the production of any other important commodity.

Boring for petroleum is less than a quarter of a century old. It dates from Aug. 30, 1859, when Col. E. L. Drake struck oil on the Drake farm on Oil Creek. In 1859 Col. Drake's well produced about 2000 barrels of oil; in 1860 new wells brought the total yield up to 500,000 barrels; in 1861 it was 2,113,609 barrels; and in 1862 3,056,630. The production of crude petroleum fell off in 1863, 1864, and 1865, but the discovery of the new Tidioute district and of the many flowing wells of Pithole brought it up in 1866 to 3,887,700 barrels. The Butler and Clarion counties fields, and fresh discoveries in Venango County, ran the production up steadily during the following years, until it reached 10,809,852 barrels in 1874. Then came two years of decline, the elder wells giving out and the newer one yielding less and less. In 1875 the Bradford field was discovered. Its development proceeded so rapidly, and it proved to be of great extent, that in 1880 its yield was double that of all other fields in 1874, and about six times as great as all others at that time. Of the 26,000,000 of barrels produced in 1880, over 22,000,000 came from the Bradford district.

The Allegheny district was opened in 1881, and now ranks next to Bradford; and the phenomenal Cherry Grove field in Warren county had its rise and fall in 1882. A number of small districts, or pools, in Warren, M'Kean, and Venango counties, was opened between 1875 and 1881. For sudden and enormous effect upon values, the Cherry Grove excitement of last summer was without parallel in the history of the petroleum trade. It surpassed the famous Pithole furore of 1865. On May 17 "646" struck oil, and 4000 barrels were run the first day. In a few days the value of oil suffered a shrinkage of \$30,000,000. Crude petroleum tumbled from 85 cents to 49 cents. Within a brief period the hemlock woods of Cherry Grove township were alive with men and teams, hauling boilers, engines, drilling tools, lumber for derricks and shanties, kegs of beer, boxes and barrels of provisions, furniture—all the equipment, in short, of a new settlement. Before the end of June two bustling towns had sprung up—one called Garfield, in honour of the martyr President, and one Farnsworth, for the owner of the farm where the wonderful well was sunk. Land that had lately been sold at \$4 an acre to pay the taxes changed hands in five acre tracts at from \$500 to \$1000 an acre. Hotels, stores, machine shops, saloons, and a theatre sprang up as if by enchantment. In August the Cherry Grove field produced 40,000 barrels a day; but from that maximum it steadily declined, and when the writer visited it in October the daily yield from all the wells was less than the yield of 646 during the first 24 hours after it commenced flowing.

Many wells were abandoned, and the tools and machinery were being removed to other fields. Even under the discouragement of the rapid collapse of the district, however, new wells were being sunk. Probably the field will yield 2000 or 3000 barrels a day for some years to come from a hundred wells producing a few each; but its importance has gone, and with it the fortunes of hundreds of eager speculative men, who rushed in to share the profits of the big strike. . . . It costs about 80 cents a foot to sink well by contract. The cost of a finished well, with apparatus complete, varies from \$3000 to \$4000, according to the depth at which the oil stratum is found and the expense of getting the engine and boiler on the ground. If a well proves a dry hole, or fails to yield enough oil to pay for pumping, and the owner removes the machinery to other ground for a fresh experiment, he is out of

pocket from \$1000 to \$1500. In the whole Pennsylvania and New York field the number of producing wells is at this time not far from 20,000, of which about 13,000 are in the Bradford district. The number of dry holes and exhausted wells no man has endeavoured to compute. It is a common saying in this region, however, that since 1879 more money has been put into the ground than has ever been got out of it. No consideration of the general interest of the trade or of the risk involved in sinking new wells checks the business of boring.

Production constantly runs ahead of consumption. It is useless for the newspapers in the oil country to show how much more prosperous the trade and all dependent upon it would be if the price of crude petroleum were kept up to a dollar a barrel by limiting production. As soon as the price goes up high enough to be fairly remunerative, hundreds of new wells are sunk in old territory, and "wild catting" becomes active. Mr. Smalley enters into a variety of details, which are well worth reading, and explains more particularly the apparatus used in the sinking of wells, the manner of transporting and storing the oil after it is raised, the principle of insurance that obtains, and some peculiar characteristics of the "oil cities." He also treats of the proceedings at the oil exchanges, and concludes an instructive and carefully prepared paper by the following remarks as to what is the future of the petroleum business:—

With a productive territory virtually confined to a few small strips and spots in six counties in Western Pennsylvania and New York, and an inexorable law of rapid exhaustion applying to all wells, the time would seem to be close at hand when this great blessing, the cheap light of the whole civilised world, would fail. Still, the history of the business in the short period since it began has been one of constant expansion. New fields have invariably been discovered when the yield of the old ones began to decline. Oil men have confidence that there is plenty of undiscovered territory yet to be found. Providence they say would not bestow so great a gift upon mankind to withdraw it when its use had become universal, and the need of the human race for its benefits the greatest. Scientists may say that this view is based on an optimistic or pietistic theory of the universe that will not stand investigation. So far as the great stores of fuel and light—the coal and the petroleum—are concerned it has, however, held good thus far. They have not failed. If the oil of the rock is destined to run dry the chemist will perhaps be ready by the time it is exhausted to produce a cheap illuminator from water.

UTILISING PARLIAMENTARY POSITION FOR COMMERCIAL PURPOSES.

An instructive discussion took place in the House of Commons yesterday (Friday) afternoon on the consideration of the Hull, Barnsley, and West Riding Junction Railway and Dock (Interest) Bill, which should induce the Legislature to pass a law prohibiting Members of Parliament from speaking or voting on a bill in which they are pecuniarily interested. It is customary for a judge even if but indirectly interested in a case brought before his court to withdraw that there may be no shadow of suspicion that the decision is influenced by personal considerations, but it seems that Members of Parliament have neither the delicacy nor the honour to adopt so gentlemanly a course. Sir Joseph Pease moved that the bill be considered as amended upon this day three months. He said this bill involved a payment of interest out of capital far outside what was permitted by the Standing Order recently passed. If this bill were passed it would do away with all respect for the statute law and for the Standing Orders of the House, and would deal a death-blow to the upright, honest, and straightforward dealings which characterise this country in matters of trade. Notwithstanding an injunction which had been issued by the Master of the Rolls, forbidding the payment of interest out of capital by this railway company, it found means to induce the contractors to issue dividend warrants. When the company asked for this bill they knew what the law was, and they had defied the law and made arrangements to get behind it, looking to the passing of the bill to cover their illegal proceedings.

The amendment was seconded by Mr. Cropper, who remarked that the bill went far beyond what was contemplated by the House in passing the Standing Order. Colonel Smith thought the House would hesitate before it upset the decision which had been arrived at by the Chairman of Committees after due consideration. Sir J. Pease was a director of the only railway which was in direct opposition to the one now in question, but his action to-day would injure his own railway more than the Hull and Barnsley. Sir A. Otway said he had sought the advice of the Board of Trade, and came to the conclusion that under the circumstances the relief sought by this bill ought to be granted. One result of rejecting this bill would be that from 8000 to 10,000 men engaged in an important undertaking would be thrown out of work, and that was a serious consideration with him. The fact was that the hon. baronet was one of those who opposed all enterprises on the part of people who were not so well established as himself.

The remarks of Sir A. Otway were received with Opposition cheers. Mr. T. Collins supported the amendment, and Mr. C. Wilson said that the question in this case was whether the port of Hull should be relieved from the monopoly from which it has suffered for a great number of years. The entire trading community of the district would be benefited by the passing of the bill. It was too bad that private interests should be paraded before the House on public grounds. Mr. Giles said the present docks at Hull were not capable of accommodating the large ships now in process of construction. If the payment of interest out of capital was stopped, they might say good-bye to all great public works. Upon the House dividing the numbers were—for the amendment, 124; against, 109; majority, 15. When the handing of the paper to Sir J. Pease showed that he had carried his amendment there was great cheering, and for some moments he was unable to read the figures. Upon hearing the numbers the House renewed the cheers.

AN ELECTRICAL LAUNCH.—A launch propelled by stored electricity made a trial trip between the Temple and Greenwich on Tuesday, being one of the first instances of the use of this motive power thus far applied. The launch, which is only 40 ft. in length, was built of galvanised steel by the Messrs. Yarrow and Co., of Poplar, and the propelling power is found by Messrs. Siemens' dynamos, placed under the flooring at the stern of the boat, which is raised there about 8 in. The electricity for giving motion to the dynamo is obtained from Faure-Sellon-Volckmar accumulator cells, supplied by the Electrical Power Storage Company, placed under the flooring, where they not only do not occupy space available for passengers, but are useful in forming ballast. There is storage sufficient to give very high speed for six hours, or a longer time with a medium speed. On the ordinary launches the machinery and attendants occupy the larger and better parts of the vessel, but on the one tried on Tuesday the only machinery seen was the steering gear, and one man steered and managed the whole, there being room for more than 40 persons. There was in the travelling no noticeable vibration and the absence of smoke was not only apparent to the travellers, but to the workers on ships in the Pool, who hailed the little craft with the query as to where the funnel was. The boat arrived at Greenwich in three-quarters of an hour. The makers present the craft as possessing qualities especially adapted for warfare, for she is noiseless, is ready in a moment when the accumulators are once charged; and the electrical power is easily obtainable on board ship from the engine, or from water-wheels. The trial was quite successful, and Mr. Yarrow, representing the builders, and Mr. Collert, representing the Electrical Power Storage Company, were congratulated on the result of the day.

TREATING SOLUTIONS OF METALLIC SALTS FOR THE REMOVAL OF IRON IMPURITIES.—In order to separate from the solutions of metallic salts the admixture of iron which generally occurs therein through the method of their manufacture, Mr. F. C. GLASER, of Berlin, proposes a process which consists in adding to the said solutions for this purpose certain antimony compounds, or stannic acid, the latter being regained by regeneration and thus rendered available for repeated operations. The process, which is applicable for

all metallic salts, such for instance as sulphate of alumina, alum, zinc white, sugar of lead, and others, is carried out as follows:—The concentrated neutral or preferably basic solution of the metallic salt to be purified from iron is mixed cold either with one of the following antimony compounds, or with stannic acid, and is stirred for sometime. As the antimony compounds to be employed may be mentioned antimonic acid, antimonous acid, as also the salts of both compounds. The said antimony compounds or the stannic acid are added in excess, and the quantity depends upon the proportion of iron contained in the solution, being readily determined by experiment. After the mixture has been allowed to subside the supernatant clear solution of the metallic salt, which is now free from iron, is decanted. The deposit is washed in filter presses, after which the iron is separated therefrom by means of suitable acids, and the pure antimony compound or stannic acid thus obtained is again available for use in the same process.

ROLLER JAW STONE BREAKER.

The stone-breaker is now so largely used in connection with mining that several attempts have been made to facilitate the replacement of the wearing portions without necessitating a long stoppage of the machine. Among the latest inventions of this class is that of Mr. S. L. MARSDEN, of New Haven, U.S., who claims that he can now construct a less expensive and more durable and effective machine than that hitherto produced. In place of the flat fixed jaw plate in common use in stone and ore crushers of this class a cylindrical jaw is used, which is preferably constructed in cylindrical sections, but may consist of a single casting, and may have either a smooth or a corrugated crushing surface, or the surface may be provided with teeth or studs. This improved jaw has the advantage of presenting a broader wearing surface than a flat plate in a frame, and the said jaw may when one face is worn be turned to present a fresh or unworn face towards the opposite jaw, and the relative positions of the sections may be changed at will, so that all may be made to sustain an equal amount of wear. Preferably these sections are cast with a central bore and a surrounding ring of holes. In the bore of each section is fixed a cross bar, by which the sections may be raised or lowered, and in the said holes pins may be inserted for holding the sections in position. The cylindrical jaw rests on lugs projecting inwards from the sides of the frame, and is held down in place by a key that lying across the top of the upper section is passed through the slots of the hopper frame plates, and through lugs that are formed on the said plates, especially for the reception of the said key.

The improved moveable jaw plate has a corrugated concave face whose curve corresponds with that of the fixed cylindrical jaw, being in its general outline equidistant therefrom at every point throughout its width. Hence it will be seen that a wider crushing surface is afforded by these curved jaws than there would be by straight or flat jaws of the same breadth, and these curved or convex and concave jaws not only present a more extended crushing surface but they are also especially adapted because of their curves to the crushing of slabs or plates of stone, or other substance which are apt to pass unbroken, or but partially reduced, out from between the ordinary flat jaws. The moveable jaw plate is adapted to be fixed in place with either end uppermost, and it may have its face bevelled off at either or both ends if it be desired to enlarge the opening between the jaws at the top or bottom thereof. The said plate is held in place partly by studs that project from the swinging jaw, and enter inclined plate sockets and partly by a screw bolt.

On the outer faces of the hopper frame plates are lugs that form jaws or sockets for securing the hopper in place. The toggle lever employed resembles a form that has been hitherto used, but it has been found desirable to substitute for the car in that lever a renewable and adjustable concave bearing which is set in a corresponding socket made in the back of the head of the said lever, and is made adjustable therein by means of a set screw or screws. The toggle block is also made vertically adjustable by means of an attached screw that passes up through the frame, and has a nut on its upper end. The toggle block has also a socket in its face in which is adjustably held by a set screw, a fulcrum or bearing which projects into the concavity of the lever bearing. In the face also of the toggle lever is a socket in which is adjustably held by a set screw a toggle bearing or fulcrum, and in the back of the swinging jaw a toggle bearing or fulcrum is adjustably held by a set screw in a socket.

Original Correspondence.

GOLD MINING IN VENEZUELA.

SIR.—My attention has been called to a short paragraph in last week's Journal in which I find mentioned the discoveries of gold in the region of the Rivers Tesoro, Santa Cruz, and Guaratarro, all of which are within the boundaries of the Bolivar estate, to which I succeeded at the death of my father, the late John Bird. I can fully endorse the statements of your correspondent, as during my stay in the country I made it my special business to thoroughly test the many reports which were in circulation from Capt. Prince, Capt. Brown, Mr. Wulff, and Prof. Vincent, and others, before Venezuela became so intimately known to our investing public, and from my own knowledge I unhesitatingly adhere to my prognostications published in your paper some years ago, after my first visit to the estates—"That Venezuela would in time prove to be one of the richest gold-bearing countries," and experience has confirmed my conviction.

Being in possession of the properties north and south of the celebrated Quebrada Company's mines, I naturally take a deep interest in anything which is calculated to develop the same, as the 450,000 acres which I possess not only contain gold, silver, and copper, but also coal, which has been proved, and given highly satisfactory results. There is no doubt that since the well-known firm of Messrs. Mathesons completed the Bolivar and Caracas Railways the country has assumed a very different position to that which it formerly occupied, and if you, or any of your subscribers, require any information as to a country teeming with mineral, timber, and other wealth, I shall only be too happy to furnish any details in my power respecting Venezuela.

W. W. BIRD.
Palmerston Buildings, July 20.

WEST CARADON MINE.

SIR.—Please allow me space in the *Mining Journal* to direct attention to this mine. The company commenced operations about three years ago, and since that time a portion of the sett has been detached and is being worked as West Gonamena. But against that may be placed the present greatly improved condition of West Caradon Mine, including the recent important discovery of Gilpin's lode, which has been missed for a number of years. According to last reports from the agents the yield is about 11 tons of ore per fathom in the aggregate, and is very rich in quality.

At the last sale at Truro in May 128 tons of ore were sold for £420, or an average of 5s. 15s. 10d. per ton. South Caradon ore sold at the rate of 5s. 4s. 9d. per ton, and Devon Consols at 1s. 16s. 7d. per ton only—average prices, showing that the price made for the West Caradon ore was the highest of any at the sale. The financial position of the property is also sound and good, the balance-sheet of January showing a balance of assets over liabilities of £700, and a call unnecessary; while at the last meeting of the company, held in May, the balance in favour of the adventurers was still £14, and only a nominal call of 6s. per share was made.

King's Norton, July 19.

THE GRASKOP (TRANSVAAL) GOLD MINING COMPANY (LIMITED).

ISSUE OF 100,000 TEN PER CENT. PREFERENCE SHARES OF £1 EACH.

The Preference Shares are entitled to a cumulative Preferential Dividend of 10 per cent., with further advantages as to dividend as explained in the prospectus.

Payable as follows—viz., 2s. 6d. on application, 7s. 6d. on allotment, and the balance by instalments of 5s. each at intervals of not less than two months each.

NOTICE IS HEREBY GIVEN, that the LIST OF APPLICATION for SHARES will CLOSE on TUESDAY next for LONDON, and on WEDNESDAY for the COUNTRY.

31, Lombard Street, London, E.C., July 19, 1883. By order, W. H. LEE, Secretary, pro tem.

Samples of quartz and gold from the company's property can be seen at the offices as above.

The Graskop (Transvaal) Gold Mining Company, Limited.

Incorporated under the Companies Acts, 1862 to 1880, whereby the liability of each Shareholder is limited to the amount of his shares.

CAPITAL, £300,000,

In 100,000 Preference Shares of £1 each, and 200,000 Ordinary Shares of £1 each. The Ordinary Shares are taken by the vendors in part payment of the property. The Preference Shares are entitled to a cumulative preferential dividend of 10 per cent., with further advantages as to dividends as explained in this prospectus.

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Payable as follows—viz., 2s. 6d. on application, 7s. 6d. on allotment, and the balance by instalments of 5s. each at intervals of not less than two months each.

DIRECTORS.

ARTHUR LOFTUS TOTTENHAM, Esq., M.P., Gienfarne Hall, Enniskillen, CHAIRMAN.

W. SMETHURST, Esq., J.P., The Garswood Hall Collieries Company (Limited) Wigan, Liverpool, and London.

Major E. J. CHARTER, 9, Nevern Square, South Kensington, S.W.

W. M. FARMER, Esq., Member (for Cape Town) of the Cape of Good Hope Legislative Assembly (Wm. Anderson and Co., Cape Town and Port Elizabeth).

FREDERICK R. BULLOCK, Esq., 35, West Cromwell Road, South Kensington, S.W., Chairman Upper Assam Tea Company (Limited).

BANKERS—CAPITAL AND COUNTIES BANK (LIMITED), 39, Threadneedle Street, London, E.C., and Branches.

CONSULTING ENGINEERS—MESSRS. RICKARD BROTHERS, 58, Lombard Street, London, E.C.

SOLICITORS—MESSRS. KING and PETO, 16, Abchurch Lane, London, E.C.

AUDITORS—MESSRS. GOOD, DANIELS, and CO., 7, Poultry, London, E.C.

SECRETARY (pro tem.)—MR. H. W. LEE.

REGISTERED OFFICES—31, LOMBARD STREET, LONDON, E.C.

PROSPECTUS.

1.—This company has been formed for the purpose of purchasing the lease and concession of the mining rights of, and further developing, an extensive and valuable gold property, known as Graskop Farm, in the South African Republic (Transvaal). It is about four miles from the mining town of Pilgrim's Rest. The property is reached from the sea-coast at Delagon Bay by a good wagon road about 120 English miles in length, or from Cape Town in 10 days by railroad and post-cart by way of Kimberley as far as a point within 30 miles of Graskop, to which a good road is constructed, and from Durban, Natal, in about six days by railroad and post-cart. The property may fairly be described as situate in the centre of the best known and richest of the gold fields in the Lydenburg district of the Transvaal. To the north are the well-known farms of Berlin and Lisbon, in which the South African Syndicate Company are interested. Immediately adjoining both on the north, east, and west, the Graskop Farm is bounded by the gold bearing properties acquired by the Transvaal Gold Exploration and Land Company, and to the south is the rich Spitzkop district.

2.—The mineral wealth in gold in the Transvaal is, of course, well known, and from the reports which have been made on the Graskop Farm the directors are of opinion that they have secured one of the best properties ever likely to come into the market.

3.—The survey of the Government land surveyor gives the area of the property as 10,040 English acres, and it lies at varying altitudes of from about 4500 to about 6500 ft. above the level of the sea. The discoveries already made warrant the belief that gold is distributed very generally over the estate, and the surface being diversified by high and low lands, is remarkably well adapted for mining operations, which have already been carried out with considerable success by a few independent miners who worked under the system of Government licenses. In the high lands or terraces are found numerous gold veins in a quartz formation, whilst in the lowlands there are abundant alluvial gold deposits, as well as ample supplies of water for hydraulic purposes, and for driving the machinery necessary for treating the ore found in the upper portion of the property.

4.—Repeated examinations have been made by skilled engineers, and they unite in bearing testimony to the extraordinary quantity of gold-bearing ore which is to be found on this property, and although these gentlemen think that the ore will yield far more, the directors prefer to put the probable percentage of gold at 1 oz. to the ton, while the total cost of mining, &c., is estimated not to exceed 12s. per ton. It will thus be seen that enormous profits may be anticipated to result from the operations of this company.

5.—The character of the ore is very workable, and is not refractory, either from an admixture of sulphides or other cause, and consequently the mining can be carried on at the lowest possible expense.

6.—The climate is perfectly healthy, and work can be prosecuted during the entire year.

7.—The estate has an ample supply of water for the future workings of the ore, and for hydraulics, but it will be necessary to provide reservoirs so as to be quite secure in the driest seasons.

8.—With proper superintendence the native Kaffir labour will answer all the requirements of the mines, and this can be procured in abundance and at a most moderate rate.

9.—The mining rights are derived from a lease and concession (a copy of which can be seen at the offices of the company's solicitors) granted in 1882 by the Transvaal Government, subject to the concessionaires compensating the miners who were at that time working on different claims for the direct loss which they may suffer through the revocation of the proclamation of this area as public gold fields. The value of the property may be in some degree estimated by the amounts claimed by six of these miners, which exceeded £50,000, although only a very small portion of the area of the estate (under 50 acres) was occupied by them and their mining appliances were of a very primitive description. These claims have

been adjudicated upon by the Government and the vendors out of the purchase price undertake the payment of all compensation payable to the diggers under the conditions of the concession.

10.—The directors have been advised by one of the most eminent Transvaal lawyers that the vendors' title to the concession and lease is perfectly valid, and the form of transfer to be used in vesting the property in the company has been duly settled by him.

11.—It is intended to proceed vigorously with the development of the property so as to obtain quick returns, and it is confidently anticipated that within a short time very large profits will be made. With this view it is proposed at once to send out the necessary crushing and dressing machinery, in addition to dealing with as large a quantity of the alluvial deposit as may be found practicable.

12.—The directors feel that they cannot better and more satisfactorily recommend this enterprise to the investing public than by adopting the words of the eminent mining engineers, Messrs. Rickard Bros., when they say, "The chief characteristics of Graskop are:

- (a) The diffusion of the gold, or, in other words, the abundance of the material.
- (b) The free nature of the gold due to its disassociation with sulphides or other substances which so frequently render its separation difficult and wasteful.
- (c) The soft or easy nature of the rock and matrix, favouring rapid development and cheap mining and milling.
- (d) The presence of a good water supply, which our agent assures us can be relied upon throughout the year to furnish milling power to the extent of 100 tons per diem.
- (e) The generally favourable conditions as to climate and labour, the uplands of the Transvaal being very healthy, and native labour good, and at low rates.

13.—The information contained in this prospectus is derived from the numerous reports which have made on the property, and these full and detailed reports, as well as the assays of the samples of the ore sent to this company, can be seen at the offices of the company. Samples from the reefs can also be seen at the offices of the company.

14.—The preference shares now offered for subscription to the public will, in the first place, be entitled to a cumulative preference dividend of £10 per cent. per annum, and the balance of profit resulting from the operations of the company will, after paying £10 per cent. dividend on the ordinary shares, and providing a reserve fund, be distributed among all the shares of the company, so that each preference share shall receive one-half the amount of additional or bonus dividend paid on each ordinary share. The holder of fully paid-up preference shares will at any time be entitled to exchange his preference for ordinary shares.

15.—The £1 ordinary shares of the Transvaal Gold Exploration and Land Company (the owners of properties adjoining the Graskop estate) have already attained 75 per cent. premium, and can only be bought occasionally.

16.—The only contract entered into is an Agreement dated the 29th day of June, 1883, between Adolf Hollard, Adolf Ostrowski, and Samuel Siegmann, of the one part, and R. H. Phillips, for and on behalf of this company, of the other part, whereby the property is acquired for the sum of Fifty Thousand Pounds in cash, and Two Hundred Thousand Pounds in fully paid up ordinary shares of the company. All preliminary and other expenses up to the allotment of shares will be paid by the vendors.

17.—A copy of this Agreement, and the Memorandum and Articles of Association, may be seen at the offices of the Company's Solicitors.

18.—Prospectuses and Forms of Application can be obtained from the Secretary, Solicitors, Auditors and Bankers of the Company.

31, LOMBARD STREET, LONDON, E.C.

July 10th, 1883

CORRESPONDENCE.—All communications in reply to letters published should, to ensure attention for the current week, reach the office not later than Thursday morning. We must again repeat that letters in the Correspondence columns can only be replied to through the same channel. All letters reaching the *Mining Journal* in reply are, however, they may be addressed, or when in blank envelopes, opened; and the enclosure is published or destroyed at the discretion of the Editor, but never forwarded to the correspondent replied to.

SPANISH MINES.—The OWNER of some VALUABLE MINES is willing to MAKE ADVANTAGEOUS ARRANGEMENTS with a Gentleman possessing £1000, or more. Address, "Mines," 8, Albany-street, Regent's Park, N.W.

TO CAPITALISTS, PROMOTERS, AND OTHERS.

THE OWNER of a VALUABLE LEAD SETT, who has been working it for some time on his own account, REQUIRES ADDITIONAL CAPITAL to bring it into most successful condition. From one lode—there are five or six in the sett—they can break lead, copper, muntic, spathose iron, capel, and quartz, and the mineral can be trammed on board ship within 400 yards. There is a never-falling stream of water, abundance of timber, no land carriage, dues 1-18th, falling to 1-20th when machinery is erected, and nothing to pay for coming in.

The mine is on the same belt that has proved to be the richest in Europe for silver, Old Trebregget and Pengenna being also on it, and the ore can be raised and put on board ship for what many mines have to pay for carriage alone, so that profits could be earned even at present price of lead.

For particulars address, "W. P." care of MINING JOURNAL Office, 26, Fleet-street, London, where photograph and plan of the property can be seen.

AN ENGINEER, who has had very extensive experience in the Designing, Constructing, and Management of Chemical and Metallurgical Works, is OPEN to an ENGAGEMENT. Special experience in the treatment of mixed ore, containing Zinc, Lead, Copper, and Silver.

Address, "J. W. C." Morriston, R.S.O., South Wales.

TO CAPITALISTS.

AN EXTENSIVE MINE SETT, in the best silver-lead district in Cornwall, with rich ore showing itself close to the surface, may be SECURED ON FAVOURABLE TERMS.

For particulars, address to "Miner," 24, Gilbert-road, Kennington, London, S.E.

WATSON BROTHERS' MINING CIRCULAR.

WATSON BROTHERS,
MINEOWNERS STOCK AND SHARE DEALERS &c.
1 ST MICHAEL'S ALLEY, CORNHILL, LONDON.

In the year 1843, when mining was almost unknown to the general public attention was first called to its advantages, when properly conducted, in the "Compendium of British Mining," commenced in 1837, and published in 1843, by Mr. WATSON, F.G.S., author of "Gleanings among Mines and Miners," "Records of Ancient Mining," "Cornish Notes" (first series, 1852), "Cornish Notes" (second series, 1863), "The Progress of Mining," with Statistics of the Mining Interest, published annually in the *Mining Journal* for 21 years, &c., &c. In the Compendium, published in 1843, Mr. WATSON was the first to recommend the system of a "division of small risks in several mines, ensuring the success in the aggregate," and Messrs. WATSON BROTHERS have always a selected list on hand. Perhaps at no former period in the annals of mining has there been more peculiar need of honest and experienced advice in regard to mines and shareholding than there is at present; and from the lengthened experience of Messrs. WATSON BROTHERS they are emboldened to offer, thus publicly, their best services and advice to all connected with mines and mining.

Messrs. WATSON BROTHERS are daily asked their opinion of particular mines, as well as to recommend mines to invest or speculate in, and they give their advice and recommend mines to the best of their judgment and ability, founded on the best practical advice they can obtain from the mining districts, but they will not be held responsible, nor subject to blame, if results do not always equal the expectations they may have held out in a property so fluctuating as mining.

The great extension of mining business, the difficulty so often complained of by country shareholders in getting accurate and disinterested information as to the state of Cornish and Foreign Mines, and of the financial and real position of mining companies generally, have induced Messrs. WATSON BROTHERS to make their Circular now published in the *Mining Journal* more extensively known, and to state—

That they issue daily to clients and others who apply for it a Price List (assisted to most of the London and country papers), giving the closing prices of mining shares up to Four o'clock.

They also buy and sell shares for immediate cash, for the usual fortnightly settlement in all mines dealt in on the Mining and Stock Exchanges, at the close market prices of the day, free of all charge for commission. They deal also, on the same terms, in the Public Funds, Railways, Telegraphs, and all other securities dealt in on the Stock Exchange.

Having agents in all the mining districts, they are constantly getting mines inspected for their own guidance, and will also obtain special reports of any particular mine for their clients, for the inspecting agent's fee of £2 2s.

Messrs. WATSON BROTHERS take this opportunity of stating that on July 1 they took into partnership Mr. H. J. DEAN, who has been for a number of years associated with the firm, and Mr. W. H. H. WATSON, who has had some years experience of practical mining and engineering in Cornwall, and is the son of the senior partner. The firm will still be called that of "Watson Brothers."

The number of weekly communications received from almost every part of the world in regard to remarks in this Circular indicate so plainly how much they are read (and, we trust, appreciated) that they will be continued by the same writer.

Indeed, while new blood is introduced to attend to the more laborious and mechanical details of the business, the old will have more time to devote to their different departments.

We have for some months past called constant attention to two very important points at the Prince of Wales Mine, and, as they are now developed sufficiently to enable the agent to give his almost positive opinion upon them, he writes this week, so we think it time to refer to them more particularly, and especially as we may have one of the greatest mines in the county, if what is now stated proves to be correct. When we started Prince of Wales some years ago, and cut what is known as the Prince of Wales lode, shares rose from 5s. to 3d. and 3d. 10s. per share, and the mine paid good dividends for some time. Then, the engine being too small was overpowered by the water, and as the lode going west became smaller and poorer, the company was wound up, the shareholders not finding disposed to go to the expense of larger machinery. The present company then purchased the mine, put up powerful machinery, and have to the present time spent from 12,000*l.* to 15,000*l.*: 25 fathoms from the shaft the lode took a bend or inclination south, and this south part was driven upon for a considerable distance, as it was supposed to be the main lode. Indications, however, some time ago led the present agent to think differently, as at the 77 west on reaching a cross-course (as we stated at the time it appeared) there was a great rush of water, which not only coated picks and other things put into it with copper, but washed out some of the finest stones of ore we ever saw. One of the first of these, now before us, is supposed to be at least 90 per cent. of copper, and we made up our minds when we first saw it that there must be a lot of ore somewhere near at hand; a cross-cut was, therefore, put out, and after driving some fathoms along the cross-course a lode was cut; but the water was too strong to enable us to work on it, and it was necessary to drive a similar cross-cut at the 90 to drain it. This cross-cut has now intersected the lode, which is 6 ft. wide, with very rich stones of ore in it; and the agent is now positive in his own mind that this is the main Prince of Wales lode, and is, therefore, whole to surface.

If this be so, its importance can scarcely be overrated, for as the lode at the 77 and 90 get clear of the cross-course it may become very productive, and then a similar short cross-cut will be put out at the 50, and we may have a very rich mine. It is quite clear also that from 25 fms. from the shaft, all the levels were driven on the south lode or branch, for at the same point at the 77 and 90 the main level has been intersected. These cross-cuts at the 77 and 90 have taken time and money, and have tried our patience as well as that of the shareholders generally, but we have never once lost faith in the result, and have continued to be, through good report and bad report, among the largest shareholders in the mine.

We understand that the Duchy agent, as well as others, concur in the opinion of Capt. Roberts, and if it prove correct, not only is there a whole mine to surface, but a considerable length to drive back at the lode to the point where the south branch diverged from it, so that levels can be at once opened east and west on both ends at the 77 and 90.

D'Kresby Mountain is looking better; one stope is worth 2 tons of ore per fathom.

It will be seen that at the Cornish Ticketing on Thursday the ore averaged about 10s. per unit. The average produce of the ore sold was 5*lb.*, the average price 2*lb.* 14*lb.* Most of the Devon Consols ore sold under 1*lb.* 10*lb.* per ton—92*lb.* tons realising only 1,398*lb.* 15*lb.* 6*lb.* Gunnislake (Clitters), 452 tons, brought 203*lb.* 1*lb.* Some of the South Cadron ore brought 15*lb.* 12*lb.* per ton. The Prince of Wales averaged over 4*lb.* per ton; and the mine has for sale 3 tons of copper precipitate averaging 41 per cent., which should bring over 20*lb.* per ton.

It will be seen that the dividend at Wheal Crebor is 2*lb.* 6*lb.* per share, or 1500*lb.*, and the richest part is now in the bottom of the mine, which augurs well for the future.

ALICE HOLT WOODS, FARNHAM.



By Order of the Commissioner in charge of Her Majesty's Woods, Forests, &c.

TO BE SOLD, BY AUCTION.

BY MR. J. HARRIS,

At the Bush Hotel, Farnham, on Monday, July 23rd, 1883,

(Luncheon at 1:30; Sale to commence at 2:30)

1,095 OAK FLITTERS.

785 CORDS OF OAK WOOD.

9,047 OAK BAVINS.

(The produce of Alice Holt Woods.)

Catalogues may be obtained of the Hon. G. W. LASCELLES, Queen's House, Lyndhurst; or of Mr. LINTOTT, Holt Side (who will depute a person to show the lots); and of the Auctioneers, Winchester.

BERE WOODS, WICKHAM, HANTS.



By Order of the Commissioner in charge of Her Majesty's Woods, Forests, &c.,

TO BE SOLD, BY AUCTION,

BY MR. R. AUSTIN,

At the King's Head, Wickham, on Wednesday, July 25th, 1883,

(Luncheon at One o'clock; Sale immediately after)

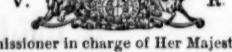
1,678 OAK FLITTERS.

80*lb.* CORDS OF OAK WOOD.

16,513 OAK AND BAVINS.

Catalogues may be had, and further particulars obtained, from the Hon. G. W. LASCELLES, Queen's House, Lyndhurst; Mr. JOHN BROOMFIELD, Foreman, Bere Woods; and of the Auctioneer, Bishop's Waltham.

NEW FOREST, HANTS.



By Order of the Commissioner in charge of Her Majesty's Woods, Forests, &c.

TO BE SOLD, BY AUCTION,

AT LYNDHURST,

BY MESSRS. F. ELLEN AND SON,

On Tuesday, July 24, 1883, at Three o'clock in the afternoon, about

100 PIECES OF ROUND OAK TIMBER.

14,000 OAK FLITTERS. Also about

40,000 SCOTCH FIR POLES, suitable for Pit Props.

The Lots may be viewed, and further particulars obtained, on application to the Hon. G. W. LASCELLES, Queen's House, Lyndhurst; or to the Auctioneers, Andover.

CARDIGANSHIRE.

VALUABLE LEAD AND COPPER MINES FOR SALE.

MRS. O. DANIEL has received instructions from ALFRED AUDREY BROAD, Esq., Liquidator of the Cambrian Mining Company (Limited), TO SELL, BY AUCTION, at the Lion and Gogerdian Arms Hotel, Aberystwith, on Monday, July 23rd, 1883, at Three o'clock in the afternoon punctually, the VALUABLE MINES known as the

ESGAIR HIR SILVER-LEAD AND ESGAIR FRAITH COPPER MINES,

Situating about eight miles from the Llanfihangel Station, on the Cambrian Railways, and six miles from the village of Talyllyn.

These mines have yielded large quantities of both copper and lead of exceedingly rich quality.

The works are replete with costly modern machinery and plant, tramways, dressing floors, water wheels, smiths' and carpenters' shops, offices, manager's house, and a row of cottages for miners, fitted and furnished throughout, stables, sheds, magazines, and all other necessary buildings.

The mines and works are in complete working order, and the property will be sold as a going concern.

The property may be viewed at any time on applying to the Resident Agent; and further information may be obtained of Capt. WILLIAMS, Borth, R.S.O.

Particulars and conditions of sale may be had of the Auctioneer, Aberystwith, Machynlleth, and Towy; of A. A. BROAD, Esq., 35, Walbrook, London, E.C., Chartered Accountant; of Messrs. HUGH HUGHES AND SONS, Solicitors, Aberystwith; or of Messrs. LINTLATER, HACKWOOD, ADDISON, and BROWN, Solicitors, 7, Walbrook, London.

TUESDAY, JULY 31ST, NOON.

WHEAL PRUSSIA AND CARDREW UNITED MINES.

About midway between Scorrier and Redruth, adjoining the West Cornwall Railway.

MESSRS. W. T. DAVEY AND W. NICHOLL have been favoured with instructions TO SELL, BY PUBLIC AUCTION, on Tuesday, the 31st July, at Twelve o'clock precisely, at the above Mines, the WHOLE of the VALUABLE

MACHINERY AND MATERIALS

THESE, CONSISTING OF—

ONE nearly new 70 inch cylinder PUMPING ENGINE, stroke 12 by 10, with three excellent boilers, 36 tons, fitted with Galloway tubes.

ONE PAIR of 12 inch cylinder horizontal WINDING ENGINE, with capstan and drawing gear complete; 1.7 ton boiler and fittings.

ONE PAIR of 10 inch cylinder DRAWING ENGINE.

200 fathoms of 4 inch steel wire rope, nearly new.

250 fathoms of 3*lb.* inch iron wire rope, nearly new.

1*lb.* 6*lb.* feet shears and pulleys.

3*lb.* shaft tackles, landing braces, &c.

12*lb.* fathoms of very superior pitch pine rods, 14 to 16 inch.

Iron and wood bucket rods, forms, seatings, and clacks.

30 nearly new 19 inch pumps. With H and door

29 ditto 18 inch ditto pieces to

23 ditto 14 inch ditto match.

20 inch plunger poles, with stuffing boxes and glands complete.

20 inch plunger poles, with stuffing boxes and glands complete.

1 plunger pole and case, stuffing box and gland, with H and door pieces to match.

7 flat and sinking windbors, 15 to 20 inch.

4 working, 2*lb.* 17*lb.* and 2*lb.* 18*lb.*

12 matchings, 13 to 19 inch.

2*lb.* fathoms of nearly new iron stave ladders.

About 40 pairs of first-class faggotted and rolled strapping plates.

A superior lot of chain, rod and flange bolts, staples and glands, yokes, bucket prongs, &c., a quantity of railroad iron, tram wagons, 3 powerful winches, 5 large cisterns, 2 smiths' bellows (44 and 42 inch), smiths' and miners' tools, a variety of new steel and iron, grinding stone, &c., wood houses and sheds, a large quantity of launders, new and useful timber, a considerable lot of materials, and other things in general use on mines.

All the machinery, pitwork, and materials are of a very superior description. The pumping engine is considered by competent judges to be one of the finest in Cornwall.

The Lots being very numerous, a prompt commencement of the Sale will be necessary.

Refreshments will be provided at Eleven, and the Sale will commence at Twelve o'clock to the minute.

To view, apply to the Manager, Capt. JOSEPH PRYOR, on the Mines; and for further particulars to R. S. TEAGUE, Esq., Redruth; or the Auctioneers, 4, Station Hill, Redruth.

Dated July 16th, 1883.

NOBEL'S DYNAMITE

Alfred Nobel
NOBEL'S EXPLOSIVES COMPANY
TRADE MARK
LIMITED



Manufactured and sold by
NOBEL'S EXPLOSIVES COMPANY, LIMITED
(FORMERLY THE BRITISH DYNAMITE COMPANY LIMITED).

Head Office: 149, West George Street, Glasgow.

EXPORT AGENTS: JAMES THORNE AND CO., 85, GRACECHURCH STREET, LONDON, E.C.

FACTORIES—ARDEER WORKS, STEVENSTON, AYRSHIRE.
WESTQUARTER WORKS, POLMONT STATION, STIRLINGSHIRE.
REDDING MOOR WORKS, POLMONT STATION, STIRLINGSHIRE.

THE COTTON POWDER COMPANY (LIMITED)

RECOMMEND TO CONTRACTORS, MINERS, PIT SINKERS, QUARRYMEN, AND OTHERS, THEIR

TONITE, OR COTTON POWDER,

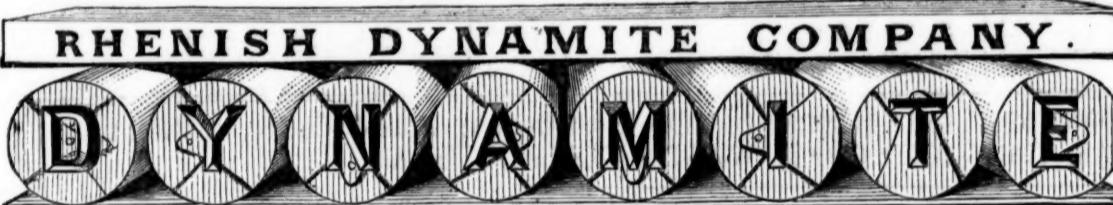
AS BEING THE SAFEST, CHEAPEST, AND STRONGEST OF ALL EXPLOSIVES.

TONITE is the most efficient and economical blasting agent ever invented, and is largely in demand. It does not contain any Nitro-glycerine, and is, therefore, exempt from the dangers of exudation, or of freezing and its attendant process of thawing.

The Company also manufacture PATENT DETONATORS of a quality much superior to the foreign article. The trade supplied on favourable terms.

23, QUEEN ANNE'S GATE. LONDON. S.W.
WORKS: FAVERSHAM, KENT.

Agents: DINEEN and Co., Leeds; DAVID BURNS, Haltwhistle; R. J. CUNNACK, Helston, Cornwall; J. and W. SMITH, Chapel-en-le-Frith; W. VEITCH, Jedburgh, N.B.; W. HARRISON, Barrow-in-Furness; W. J. PARRY, Bangor; HUNTER and FOTHERINGHAM, Glasgow.



OF THE GREATEST STRENGTH ALLOWED BY THE EXPLOSIVES ACT.

Head Office: JOHN DARLINGTON,
2, Coleman Street Buildings, Moorgate Street, London, E.C.
LONDON AGENT.—E. KRAFTMEIER & CO., 5, GREAT WINCHESTER STREET BUILDINGS, LONDON, E.C.

DEUTSCHE SPRENGSTOFF ACT.-GES.

(GERMAN EXPLOSIVES COMPANY, LIMITED),

HAMBURG.



DYNAMITE

Of the HIGHEST DESCRIPTION, and of the maximum strength allowed by the British Explosives Act (75 per cent. Nitroglycerine).

CHAIRMAN — Dr. C. E. BANDMANN, Late Partners of Messrs. A. Nobel and Co., of Hamburg,
GENERAL MANAGERS Mr. C. F. CARSTENS, Late Partner of Messrs. Bessler, Waechter, and Co., London.
Mr. C. WICHMANN, Late Partner of Messrs. Bessler, Waechter, and Co., London.

HEAD OFFICE: HAMBURG, PLAN, 9,

TO WHICH PLEASE ADDRESS ALL COMMUNICATIONS.
SHIPMENTS EFFECTED TO ALL PARTS. STOCK KEPT IN LONDON AND NUMEROUS COUNTRY MAGAZINES.
AGENTS WANTED IN THE COLONIES.

BRAUN AND BLOEM'S CELEBRATED

DETONATORS—"EAGLE" BRAND.

TRADE



MARK.

No implements required for opening inner tin box, thereby avoiding any danger arising from opening same with tools, as generally used.

Sold by WM. BRODERSEN, 79, Leadenhall-street, London, E.C.
SOLE AGENT FOR THE UNITED KINGDOM AND THE COLONIES.

For Excellence
and Practical Success
of Engines.



Represented by
Model exhibited by
this Firm

HARVEY AND CO.,
ENGINEERS AND GENERAL MERCHANTS
HAYLE, CORNWALL

LONDON OFFICE.—186, GRESHAM HOUSE E.C.

MANUFACTURERS OF
PUMPING and other LAND ENGINES and MARINE STEAM ENGINES
of the largest and most approved kinds in use, SUGAR MACHINERY,
MILLWORK, MINING MACHINERY, and MACHINERY IN GENERAL.

SHIPBUILDERS IN WOOD AND IRON.

MANUFACTURERS OF
HUSBAND'S PATENT PNEUMATIC STAMPS

SECOND-HAND MINING MACHINERY FOR SALE,
IN GOOD CONDITION, AT MODERATE PRICES—viz.

PUMPING ENGINES; WINDING ENGINES; STAMPING ENGINES,
STEAM CAPSTANS; ORE CRUSHERS; BOILERS and PITWORK of
various sizes and descriptions; and all kinds of MATERIALS required for
MINING PURPOSES.

WATER JACKET E SMELTING FURNACES

PACIFIC IRON WORKS,
RANKIN, BRAYTON, AND CO.,
For Copper and Argentiferous Galena Ores
GENERAL OFFICE AND WORKS,
San Francisco, Cal., U.S.A.

BRANCH WORKS.—CHICAGO, ILLINOIS, U.S.A.

The Pacific Water Jacket Smelters embrace many features that are entirely new and of great practical utility, which are secured by letters patent.

No other furnaces can compare with these for durability, and in capacity for continuous and interrupted work.

More than One Hundred
of them are now running in the various mining districts of the United States, giving results never before obtained as regards continuous running, economy of fuel grade and quality of bullion produced.

These Smelters are shipped in a complete state, requiring no brick or stone work, thus saving great expense and loss of time in construction.

Complete smelting plants made to order, with all the improvements that experience has proved valuable in this class of machinery. Skilled and experienced smelters furnished when desired to examine mines and to superintend constructing and running of furnace Estimates given upon application. Send for circular.

BEST METAL FOR BUSHES, BEARINGS, SLIDE VALVES,

And other wearing parts of Machinery.
PUMPS, PLUNGERS,
CYLINDERS, &c.

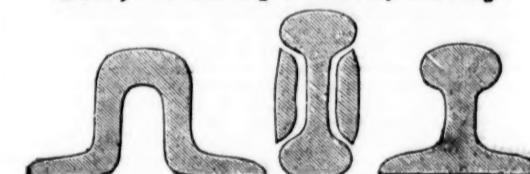
PHOSPHOR BRONZE
WIRE, TUBES,
SHEET, RODS
TOOLS, &c.

STEAM
FITTINGS

SOLE
MANUFACTURERS
UNDER PATENTS.

THE
PHOSPHOR BRONZE
COMPANY, LIMITED,
SUMNER STREET, SOUTHWARK
LONDON, S.E.

JOHN BEATSON & SON,
40h, St. Mary's Gate, Derby.



IRON AND STEEL RAILS, of all sections, from 10 to 86 lbs. per yard, new perfect, new slightly defective, or second-hand, with Fish-plates Bolts and Nuts, Chairs, Spikes, and Points and Crossings to match, when required.

STEEL AND IRON WIRE ROPE, LOCOMOTIVE ENGINES, &c., &c.

BARS, PLATES, SHEETS, &c.

STEEL OF ALL KINDS. PIG IRON OF ALL KIND

Delivered at all Railway Stations and Ports in Great Britain.

WILLIAM BENNETTS.



PATENT MINERS'
SAFETY FUSE
MANUFACTURER.



This manufacture embraces all the latest improvements for use in Blasting in Mines, Quarries, or for Submarine Purposes and is adapted for exploding Gunpowder, Dynamite, or any other Explosive; and is made suitable for exportation to any part of the world. Price Lists and Sample Cards on application.

All communications to be addressed—

ROSKEAR FUSE WORKS,
CAMBORNE CORNWALL.

W. TREGAY, MINING ENGINEER, REDRUTH.
(Established upwards of a Quarter of a Century)
ADVISES ON ALL MINING MATTERS.

THE MINING SHARE LIST.

BRITISH DIVIDEND MINES.

<i>Shares.</i>	<i>Frid.</i>	<i>Last wk.</i>	<i>Clos. pr.</i>	<i>Total divs.</i>	<i>Per sh.</i>	<i>Last pd.</i>
3200 Blue Hills t, c, St. Agnes	4	6	34	14	4	0 2
6000 Carn Brea, c, t, Illogan†	11	7	11	7½	6½	0 10
4000 Craigant Bach*, t, Cardigan	5	0	—	—	5	0 Nov.
12240 Devon Gt. Consols, c, t, Tavistock*	1	0	—	4¾	3¾	0 6
4250 Dolcoth, c, t, Camborne	10	14	60	60	65	15½ 0
6400 East Pool, t, Illogan	0	9	41	37½	42½	3 6
12000 Great Holway*, t, Flintshire	5	0	55	5	5½	0 5
15000 Great Laxey, t, Isle of Man*	4	0	17	16	17	29 13
6400 Green Hurth, t, Durham*	0	8	84	7	8	4 1
20000 Grogwinion, t, Cardigan*	2	0	—	3½	3½	16 4
9830 Gunnislake (Clitters), t, c	2	2	0	13½	1½ 1½	0 19 9
2800 Isle of Man, t, Isle of Man*	25	0	—	—	83	5 0
6000 Killifreth, t, Chacewater	4	3	6	2½	1½ 2½	0 10 0
20000 Leadhills*, t, Lanarkshire	0	0	2½	2½ 2½	1	2 0
400 Lieburne*, t, Cardiganshire	18	15	0	—	615	0 0
10000 Melinare, c, Hayle*	2	0	0	3½	3 3½	2 3 3
9000 Minera Mining Co., t, Wrexham*	5	0	8	4	6	69 8 2
20000 Mining Co. of Ireland, c, t*	7	0	—	—	24	0 0
11822 North Hendre, t, Wales	2	10	0	—	3	18 0
8146 Ditto	1	5	0	—	0	11 3 2
2000 North Levant, t, c, St. Just	13	8	0	2½	1¾ 2½	4 16 0
4760 Penhalls, t, St. Agnes*	4	0	—	5½	3½ 3½	3 17 0
12000 Phoenix United, t, c, Linkinhorne	6	0	3	2½	2 2½	17 7 6
12000 Roman Gravels, t, Salop*	7	10	0	7½	7½ 7½	9 11 0
5000 South Cadron, *c, St. Cleer*	0	10	0	5½	5½ 5½	—
8123 South Condurrow, t, c, Camborne†	6	6	8	8	8½ 8½	10 5 0
9000 South Darren, t, Cardigan*	1	10	0	8½	3½ 1	0 4 0
8000 Tincroft, c, t, Pool, Illogan†	12	10	0	8	7 7½	51 3 6
5000 Van, t, Llanidloes	4	5	0	5½	5 5½	25 13 0
2000 West Holway*, t, Flintshire	1	0	—	1½	1 1½	3 1 0
6000 West Basset, c, Illogan†	7	10	4	5½	5 5½	23 3 8 0
6000 West Kitty, t, St. Agnes	0	12	0	13½	13 13½	0 17 0
12000 Wheal Crebor, c, Tavistock	2	4	0	2½	2½ 2½	0 18 9 0
1024 Wheal Eliza Consols, t, St. Austell	18	0	0	4½	4 4½	57 0 0
6000 Wheal Grenville, t, Camborne	15	0	6½	6½	6½ 6½	12 6 0
4295 Wheal Kitty, t, St. Agnes†	5	12	0	1½	1 1½	12 18 6
3000 Wheal Ffevor, t, Redruth†	10	1	0	4½	3 4	8 13 6

FOREIGN DIVIDEND MINES

35500	Alamillos, <i>l.</i> , Spain*†	2	0	0...	17%	15%	17%	2	10	2...	0	2	0	Apr.	1881	
10000	Almada and Tirito Consol., <i>s.</i> †	1	0	0...	5%	5%	5%	0	6	3	0	1	0	May	1871	
20000	Australian, <i>c.</i> , South Australia†	7	7	6...	3%	24%	3%	1	7	6...	0	2	0	Aug.	1881	
15000	Birdseye Creek, <i>g.</i> , California*	4	0	0...	1%	14%	1%	1	4	0	0	3	0	Dec.	1881	
30000	Bratberg*, <i>c.</i> , Norway	2	0	0...	2%	21%	2%	0	2	0	0	2	0	Feb.	1881	
13000?	California*, <i>g.</i> , Colorado	1	0	0...	—	7%	1	0	1	0	0	1	0	Apr.	1881	
20000	Cape Copper Mining, <i>c.</i> South Africa	8	0	0...	50% x b.	46	49	53	7	6	2	0	0	June	1881	
65000	Colorado United, <i>s.</i> † Colorado*†	5	0	0...	2%	13%	2%	0	14	6	0	1	0	May	1881	
50000	Copiapo, <i>c.</i> , Chile* ($\frac{1}{4}$ share)†	3	10	0...	3%	35%	3%	2	9	9	0	1	0	June	1881	
70000	English & Australian*, <i>c.</i> , S. Aust.	2	10	0...	1%	1%	1%	3	2	9	0	2	0	Mar.	1881	
2000	Eng.-Aus., <i>g.</i> , Vict.* pref. (20000 o.)	1	0	0...	—	—	—	0	3	8	0	3	8	Apr.	1881	
25000	Fortuna, <i>l.</i> , Spain*†	2	0	0...	3%	3	3%	8	4	9	0	2	9	Apr.	1881	
60000	Frontino & Bolivia, <i>g.</i> , New Gran.*†	2	0	0...	2	13%	2	0	11	0	1	0	Apr.	1881		
270000	Henriett*, <i>l.</i> , Leadville, Colorado	1	0	0...	—	—	—	0	9	0	0	5	0	Feb.	1881	
200000	La Plata, <i>s.-l.</i> , Leadville	2	0	0...	1%	7%	1%	0	12	11	0	1	3	Oct.	1881	
5000	Linares, <i>l.</i> , Spain*†	3	0	0...	4	—	3%	4	19	3	10	0	3	0	Apr.	1881
20000	Marbella Iron Ore, <i>s.</i> , Spain	10	0	0...	5	4	4%	0	10	0	0	10	0	June	1881	
185154	Mason & Barry*, Portugal	10	0	0...	14%	13%	14%	2	10	0	0	15	0	May	1881	
65000	New Quebrada, <i>c.</i> , Venezuela†	5	0	0...	4%	4	4%	0	9	0	0	3	6	Aug.	1881	
1000	Ditto, Debentures	100	0	0...	103	93	103	—	6	per cent.	—	—	—	—	—	
50000	Panuelito, <i>c.</i> , Chile*†	4	0	0...	7	—	6%	7	1	12	9	0	8	Apr.	1881	
25000	Pitangui*, <i>g.</i> , Brazil (in 6000 £1 pd.)	0	10	0...	—	—	—	0	1	0	0	1	0	Sept.	1881	
1400	Pontibaud*, <i>s.</i> , France	20	0	0...	12	—	10	12	29	11	10	0	C 14	Dec.	1881	
100000	Port Phillip, <i>g.</i> , Clunes* ($\frac{1}{2}$ shares)	1	0	0...	2%	—	1%	14	2	0	0	10	0	Feb.	1881	
50000	Rara Fortuna*, <i>s.</i> , Argent. Republic	1	0	0...	—	—	—	0	3	0	0	1	0	July	1881	
54000	Richmond Consol., <i>s.</i> , Nevada*†	5	0	0...	7	—	8%	7	14	11	6	0	5	0	May	1881
24532	Rio Finto*, <i>c.</i> , Mortgage Bds., Huelva	100	0	0...	101	—	101	102	—	5	per cent.	—	—	July	1881	
325000	Ditto, shares	10	0	0...	22xd.	21	22	—	2	18	0	0	16	0	May	1881
40000	Santa Barbara*, <i>g.</i> , Brazil	0	10	0...	—	—	—	0	12	9	0	1	0	May	1881	
120000	Scottish Australian Mining Co.*†	1	0	0...	23%	—	23%	—	15	0	0	—	—	May	1881	
80000	Ditto, New South Wales	0	10	0...	13%	—	13%	—	15	0	0	—	—	May	1881	
22500	Silver Buttes, <i>g.</i> , California*†	2	0	0...	1%	—	15%	1%	2	18	0	0	2	0	Apr.	1881
40625	Ditto, Plumas Eureka	2	0	0...	1%	—	15%	1%	2	18	0	0	2	0	Apr.	1881
253000	St. John del Rio* ($\frac{1}{2}$ Stock and multiple debt in)	—	—	—	100	120	—	—	5	p.c. for half-year	—	—	—	June	1881	
160000	Tambracherry*, <i>g.</i> , Wynnstad	1	0	0...	—	—	—	—	0	6	0	0	6	0	Aug.	1881
91196	Tharsis*, <i>c.</i> , suz., Spain (31000 £1 pd.)	10	0	0...	—	—	—	—	34	1	0	2	15	0	May	1881
20000	Tolima*, <i>g.</i> , Colombia (A & Bshires)	5	0	0...	6%	—	6%	6%	2	16	6	0	5	0	July	1881
25000	Victoria* (London), <i>g.</i> , Australia	1	0	0...	—	—	—	—	0	13	10	0	0	8	Feb.	1881
100000	Victorina (Nevada, U.S.) Deb. Bds.	1	0	0...	—	—	—	—	0	2	0	0	6	0	June	1881
5000	Western Andes, <i>s.</i> , Colombia	5	0	0...	5%	—	5%	5%	3	18	3	0	2	6	Mar.	1881
21000	W. Prussian (5500 pref. sh. 210 pd.)	10	0	0...	10	—	9	10	4	2	0	0	8	Apr.	1881	
54800	York Pen., <i>c.</i> , South Australia* Pref.	1	0	0...	1%	—	1%	—	0	3	0	0	3	0	May	1881

§ Have made calls since last dividend was paid.

NON-DIVIDEND FOREIGN MINES; FOREIGN AND MISCELLANEOUS STOCKS; TRAM
COMPANIES; GAS, IRON AND COAL, WAGON COMPANIES, &c.

NON-DIVIDEND FOREIGN MINES

<i>Shares.</i>	<i>Pnd.</i>	<i>Clos. pr.</i>	<i>Shares.</i>	<i>Pnd.</i>	<i>Clos. pr.</i>
150000 Akankoo,* g, Gold Cst.(100000 iss.)	0 15 0 ..	36 36	34022 San Pedro,* c, Chili		
64880 Anglo-African,*d, Kimberley, f.....	0 10 0 ..	2 3	120000 Santa Cruz,* (ex. 10,000, retd. cap.)		
12000 Arendal, c, Norway	0 4 0 ..		50000 Sentein,* s-l, Arigie, France		
80000 Asia Minor,*s-l, Lijdjessey, Sivas	0 15 0 ..	36 36	250000 Silver Peak,* s, Colorado		
40000 Brazilian, g,*	1 0 0 ..		200000 Souback & Catir Alan,* g-s-l, Turkey		
200000 British Australian,*g, N. So. Wales	1 0 0 ..		107363 So. Austral. Cop. Mines (Corp. of)		
18000 Broadway,*g, California	5 0 0 ..		100000 South-East Wynnaid, g, India		
10000 Buena Ventura,*l, Spain (fy.pd)...	2 0 0 ..		50000 Taunus,* s-l, c, Germ. (& 100,000 pf.)		
30000 Callao Bis,*g, Venezuela	1 0 0 ..	9 16	100000 Tocopilla,*c, Bolivia		
15000 Canada,*g	1 0 0 ..		43174 United Mexican,*l? s, Mexico		
82500 Canadian, c, sui,* Canada!	4 0 0 ..	36 36	500000 Virenborg, c, Rheinbreitb., Ger.		
23000 Central Jagersfontein Diamond,*	5 0 0 ..	36 36	200000 Victoria,*g, Venezuela		
500000 Cherabambadi (Wynnaid) District,*g	1 0 0 ..		120000 Wentworth,*g, Wynnaid		
60000 Chile,*g, Venezuela	1 0 0 ..	16 34	100000 West Frutno & Boliv., g, Colombia		
8749 Chontales, g, Nicar.* (198000 iss)	1 0 0 ..	36 36	100000 Wynnaid District,*g, India		
15000 Colar,*g, Mysore	0 15 0 ..		80000 Wynnaid Perseverance,*g		
			75000 Yorke Peninsula, c, So. Australia		
			140000 Yuba River,*g, hyd California		

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100000	Devala Moyar, "g, Wynsaddi	1	0	0	0	1/2	4	4
75000	Devala Provident, "g, Wynsaddi	0	10	0	0	0	0	0
100000	Dingley Dell, "g, Devala, India ..	1	0	0	0	0	0	0
150000	Don Pedro North del Rey	1	0	0	0	1/2	2	4

NON-DIVIDEND BRITISH MINES.

<i>Shrs.</i>		<i>Prd.</i>	<i>Last wk.</i>	<i>Clos pr.</i>	<i>Sa.</i>
25000	Aberduna, * <i>t</i> , Denbigh	1 10	0..	1½.. 1 1½	25
30000	Alston United, * <i>t</i> , Cumberland	1 0	0..	—	12
12000	Anderton, <i>t</i> , <i>c</i> , Devonshire	1 0	0..	1½.. 1 1½	50
12000	Assheton, * <i>t</i> , Carnarvonshire*	5 0	0..	—	6
12000	Bedford Univ., * <i>c</i> , Tavistock (£1 lab.)	0 14	0..	1½.. 1½ 1½	22
30000	Boodidris, * <i>t</i> , <i>b</i> , Denbighshire	1 0	0..	—	8
10000	Brada, * <i>t</i> , Isle of Man	1 0	0..	—	40
30000	British, * <i>s</i> , <i>b</i> , Wrexham	1 0	0..	3½.. 3½ 3½	30
30000	Beuno Consols, * <i>s</i> , Flintshire	1 0	0..	1½.. 1½ 1½	12
20000	Bwlch United, * <i>t</i> , Cardigan	1 0	0..	3½.. 3½ 3½	45
12000	Collacombes Consols, <i>c</i> , <i>b</i> , Lamerton	0 2	6..	5½.. 5½ 5½	20
50000	Carn Camborne, * <i>t</i> , <i>c</i> , Camborne	1 0	0..	1½.. 1½ 1½	6
20000	Carmarthen, * <i>c</i>	1 0	0..	3½.. 3½ 3½	8
37500	Carmarvonshire Cons., * <i>t</i> , Llanrwst	2 0	0..	1½.. 1½ 1½	12
6600	Cathedral, <i>c</i> , Gwennap	1 3	6..	1.. 3½ 1	20
20000	Central Foxdale, * <i>t</i> , Isle of Man	1 17	6..	13½.. 13½ 13½	12
25000	Coed-y-Fedw Pant-y-Buarth, * <i>t</i>	1 0	0..	13½.. 13½ 13½	12
2450	Cook's Kitchen, <i>t</i> , Illogant	30 14	9..	20.. 22½ 27½	12
10000	Cornwall Great Cons. (4500 issued)	1 0	0..	—	10
30000	Craigloeg, * <i>t</i> , <i>b</i> , Denbighshire	0 17	0..	3½.. 3½ 3½	10
8400	Crook Burn, * <i>t</i> , Cumberland	0 17	0..	3½.. 3½ 3½	10
45000	D'Eresby Mountain, <i>t</i> , <i>b</i> , Llanrwst	0 10	0..	3½.. 3½ 3½	18
12000	Derwent, * <i>t</i> , Durham	4 0	0..	1½.. 1½ 1½	6
60000	Devon Friendship, * <i>c</i> , <i>ars</i> , Tavistock	1 0	0..	68.. 68.. 68	12
12000	Devon Great United, (21 shares) ..	1 5	0..	3½.. 3½ 3½	6
50000	Drakewells, * <i>t</i> , <i>c</i> , Calstock	0 15	0..	63.. 49.. 65	30
12000	East Blue Hills, <i>t</i> , St. Agnes	0 5	0..	3½.. 3½ 3½	50
6000	East Eastallack, <i>t</i> , St. Just	1 0	0..	13½.. 13½ 13½	40
6144	East Caradon, <i>c</i> , St. Cleer	4 19	0..	55.. 55.. 55	6
4000	East Chiverton, * <i>t</i> , Perranzabuloe	10 17	3..	7½.. 7½ 7½	42
30000	E. Craven Moor, * <i>t</i> , Patesley Bridge	0 5	0..	5½.. 5½ 5½	6
15000	East Devon Cons., * <i>c</i> , Buckfastligh	2 0	0..	2½.. 2½ 2½	60
30000	East Herdfoot, * <i>t</i> , Liskeard	1 0	0..	4.. 4.. 4	12
20000	East Long Rake, * <i>t</i> , Wales	1 0	0..	1½.. 1.. 1½	20
25500	East Roman Gravels, * <i>t</i> , Salop	1 0	0..	3½.. 3½ 3½	10
100	East Trebego, <i>c</i> , Marazion	5 0	0..	—	40
18000	East Van, <i>t</i> , Lizardiside	5 0	0..	—	110
2048	East Wheal Lovell, <i>t</i> , Helston	17 8	6..	1½.. 1½ 1½	12
100000	East Wheat Rose, * <i>s</i> , <i>t</i> , Newlyn East	1 0	0..	5½.. 5½ 5½	60
12500	Frongoch, * <i>t</i> , Cardigan (1000 sh. iss.)	2 0	0..	1½.. 1½ 1½	100
12000	Gawton, * <i>c</i> , Tavistock	2 0	0..	29.. 29.. 29	1000
40000	Glasg. Carr., * <i>c</i> (30000sh. £1 pd.), 10000 15s. pd., <i>ars</i>	0 3	0..	3½.. 3½ 3½	50
30000	Gobbett, * <i>t</i> , Devon	1 0	0..	1.. 1.. 1	20
10000	Goddards, * <i>t</i> , Carnarvon	1 0	0..	1½.. 1½ 1½	10
32000	Goginan, * <i>t</i> , Cardiganshire	1 3	0..	7½.. 7½ 7½	150
25000	Goodevere, <i>t</i> , St. Cleer	1 0	0..	1½.. 1.. 1½	150
8500	Gorsed and Merlin Con., <i>t</i> , Flint	2 10	0..	3.. 2½.. 3	150
20000	Great Dylife* (1000 sh. issued) ..	1 0	0..	—	12
6000	Great West Chiverton, * <i>t</i> , St. Agnes	0 5	0..	36.. 36.. 36	30
6000	Great Wheal Worthy, * <i>t</i> , Cornwall	1 0	0..	—	30
10000	Gwern-y-Mynydd, * <i>s</i> , Flint (pref.)	4 0	0..	1½.. 1½ 1½	120
73000	Gwydir Amal, * <i>t</i> , <i>b</i> , Carnarvon	1 0	0..	—	100
12000	Herdfoot, * <i>t</i> , near Llandaff	1 0	0..	68.. 48.. 68	100
18000	Hington Down, <i>c</i> , Calstock†	0 13	0..	3.. 2½.. 3	200
20000	Kirkichael, * <i>t</i> (2000 unissued) ..	1 0	0..	—	30
25000	Kitt Hill Gr. Cons., * <i>c</i> , ars-m., (21. sh.)	0 17	6..	3½.. 3½ 3½	60
15000	Lady Ann, * <i>s</i> , Llanarmon	1 0	0..	1½.. 1½ 1½	120
25000	Langford, * <i>s</i> , <i>c</i> , Callington	0 10	0..	3½.. 3½ 3½	60
15000	Llanegla, * <i>t</i> , Wales	1 0	0..	—	50
5120	Lovel, * <i>t</i> , Wendron	0 18	0..	36.. 36.. 36	50
9000	Marke Valley, <i>c</i> , Linkinhorne†	7 7	0..	26.. 26.. 26	30
6000	Medlyn Moor, <i>t</i> , Wendron	3 15	10..	4.. 4.. 4	30
8000	Mona, * <i>c</i> , Anglesea	5 0	0..	41½.. 4.. 4	24
20000	Mona Consols, * <i>c</i> , Anglesea	1 0	0..	2.. 2.. 2	60
15000	Monkstown, * <i>ars</i> , Devon	2 0	0..	2½.. 2.. 2½	61
20000	Mostyn Consols, * <i>t</i> , Flint	1 0	0..	4½.. 4.. 4½	40
12000	Morfa Duz, * <i>s</i> , Anglesea*	1 0	0..	36.. 36.. 36	30
80000	Mounts Bay, * <i>c</i> , Breage	1 0	0..	28.. 28.. 28	500
6144	Mount Carbis, <i>c</i> , Reiruth	1 15	0..	2½.. 2½.. 2½	25
12000	New Caradon, <i>c</i> , St. Cleer	0 5	0..	36.. 36.. 36	25
2400	New Cook's Kitchen, * <i>t</i> , Illogant	9 13	6..	5.. 4½.. 5	500
80000	New Dolcoath, <i>t</i> , Camborne*	3 0	0..	—	500
10000	New Great Wheal Vor, * <i>t</i> , Breage	0 10	0..	—	120
6000	New Holm bush, * <i>t</i> , <i>c</i> , Callington	3 0	0..	—	120
6000	New Kitty, <i>t</i> , St. Agnes	0 18	0..	2½.. 1½.. 2½	250
15000	New Redmoor, * <i>ars</i> , Callington	1 5	0..	—	120
17500	New Terras, * <i>t</i> , St. Austell	2 0	0..	2½.. 2½.. 2½	20
3500	New Tincroft, * <i>t</i> , Lelant	6 0	0..	—	30
12000	New Trumpet, * <i>t</i> , Wendron	1 0	0..	1½.. 1½.. 1½	120
80000	New Van Cons., & Glynn, * <i>t</i>	1 0	0..	36.. 36.. 36	40
12000	New West Caradon, <i>c</i> , Liskeard	0 4	6..	24.. 24.. 24	36
3000	New Wheal Peveril, <i>t</i> , Redruth	0 10	0..	—	40
35000	New Wye Valley, * <i>t</i> , Montgomery*	1 0	0..	1.. 1.. 1	120
12000	North Blue Hills, <i>t</i> , St. Agnes	0 2	6..	38.. 28.. 38..	30
5328	North Busy, <i>c</i> , Scorriger I	1 16	8..	36.. 36.. 36	36
10000	N. D'Eresby Mount, * <i>t</i> , <i>b</i> , Carnarv.	1 0	0..	—	40
25000	North Goginan, * <i>t</i> , Cardiganshire	1 0	0..	1.. 1.. 1	120

NON-DIVIDEND MINES—*continued.*

Shares.	Paid	Last wk.	Close
25000 North Grogwinion, *s-l, Cardigair..	1 0	0	1 $\frac{1}{2}$ $\frac{1}{2}$
12000 North Herodsfoot, t, Liskeard..	1 0	0	1 $\frac{1}{2}$ $\frac{1}{2}$
5000 North Molton, *c, ma, .., Devon..	1 0	0	1 $\frac{1}{2}$ $\frac{1}{2}$
6000 North Penstruthal, t, c, Gwennap..	2 15	6	7 $\frac{1}{2}$ $\frac{1}{2}$
2936 North Treskerby, c, St. Agnes ..	1 0	0	—
8000 Northern, t, Durham ..	8 17	10	—
40000 Okei Tor, *t, c, a, Calstock ..	1 0	0	—
8000 Old Shepherds s-l, Cornwall ..	1 0	0	3 $\frac{1}{2}$ $\frac{1}{2}$
60000 Owen Vean & Tregur, *t,c, Marazion	1 0	0	1 $\frac{1}{2}$ $\frac{1}{2}$ 1 $\frac{1}{2}$
20000 Pandora, *t, Carnarvon ..	2 0	0	3 $\frac{1}{2}$ $\frac{1}{2}$
45000 Parry Corporation, *c, Anglesea ..	1 0	0	6 $\frac{1}{2}$ $\frac{1}{2}$
7500 Pateley Bridge, t, Yorkshire ..	1 0	0	—
8000 Pedn-an-dreæs, Redruth ..	4 3	0	1 $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$
12000 Pelyn Wood, c, Lanivery ..	1 0	0	2 $\frac{1}{2}$ $\frac{1}{2}$
8000 Pennant, t, bar, North Wales* ..	5 0	0	36 $\frac{1}{2}$ $\frac{1}{2}$
20000 Penegarreg, t, Carmarthenshire ..	1 0	0	1 $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$
12000 Pen-y-Orsedd, *t, Flintshire ..	1 0	0	1 $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$
15000 Perran Consols, *s-l ..	1 0	0	1 $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$
12000 Perran Wheal Alfred, c ..	0 2	6	3 $\frac{1}{2}$ $\frac{1}{2}$
6000 Polcrabo, t, Crowan ..	0 12	6	14 $\frac{1}{2}$ $\frac{1}{2}$
10000 Polrose, t, Cornwall ..	1 8	0	7 $\frac{1}{2}$ $\frac{1}{2}$
10000 Port Nigel Sym., *s-l, Carnar. (4000 a.)	0 15	0	1 $\frac{1}{2}$ $\frac{1}{2}$ 3 $\frac{1}{2}$
18000 Pr. Patrick, *s-l, (als. 12000 pf. 10 p.c.)	1 0	0	—
6000 Prince Royal, t, c, s, St. Agnes ..	1 0	0	6 $\frac{1}{2}$ $\frac{1}{2}$
12000 Prince of Wales, c, s, Calstock ..	1 0	4	6 $\frac{1}{2}$ $\frac{1}{2}$
38000 Russell United, *c, Tavistock ..	0 15	6	36 $\frac{1}{2}$ $\frac{1}{2}$
30000 Silver Hill, *Callington ..	1 0	0	36 $\frac{1}{2}$ $\frac{1}{2}$
50000 Sinclair, t, bl, Whitford ..	1 0	0	1 $\frac{1}{2}$ $\frac{1}{2}$ 1 $\frac{1}{2}$ 1 $\frac{1}{2}$
40000 Sorridge, *c, Horrabridge ..	1 0	0	33 $\frac{1}{2}$ $\frac{1}{2}$
6000 South Cambis, t, c, Redruth ..	0 10	0	2 $\frac{1}{2}$ $\frac{1}{2}$
8000 So. Devon Unit., *c, Bickleigh ..	0 10	0	35 $\frac{1}{2}$ $\frac{1}{2}$
5000 South Dolcoath, c, Illogan ..	1 0	0	1 $\frac{1}{2}$ $\frac{1}{2}$
6000 South Penstruthal, t, c, Gwennap ..	2 19	6	2 $\frac{1}{2}$ $\frac{1}{2}$
6000 South Tamar, t, c, Camborne ..	5 11	6	51 $\frac{1}{2}$ $\frac{1}{2}$
2043 South Wheal Crofty, c, Illogan ..	3 19	6	8 $\frac{1}{2}$ $\frac{1}{2}$
8000 South Wheal Frances, t, Illogan ..	9 11	4	94 $\frac{1}{2}$ $\frac{1}{2}$
40000 Tamar, s-l, Bærlston ..	1 0	0	1 $\frac{1}{2}$ $\frac{1}{2}$
10000 Tankerville Gt. Consols, t, Salop*.	1 0	0	43 $\frac{1}{2}$ $\frac{1}{2}$
12000 Trebartha Lomarne, t, Northill ..	1 0	0	39 $\frac{1}{2}$ $\frac{1}{2}$
6000 Tregembo, t, c, Cornwall ..	4 0	0	34 $\frac{1}{2}$ $\frac{1}{2}$
70000 Tregentree and Old Poolefoot Con.	1 0	0	1 $\frac{1}{2}$ $\frac{1}{2}$
00000 Tresavean, t, c, Gwennap ..	1 0	0	34 $\frac{1}{2}$ $\frac{1}{2}$
60000 Trevarenn United, *t, Cornwall ..	1 0	0	1 $\frac{1}{2}$ $\frac{1}{2}$ 1 $\frac{1}{2}$
8000 Trevaunage, t, St. Agnes ..	0 3	0	3 $\frac{1}{2}$ $\frac{1}{2}$
1000 Vaughan, *t, Cardiganshire ..	10 0	0	—
2000 Violet Seton, c, Camborne ..	12 0	0	—
15000 Vincent, t, Altarnun ..	1 0	0	—
50000 Weardale, *t, Northumber. (4 $\frac{1}{2}$ share)	1 0	0	1 $\frac{1}{2}$ $\frac{1}{2}$ 1 $\frac{1}{2}$
12000 West Ashton, t, Carnarvon ..	1 0	0	—
12000 West Caradon, c, St. Cleer ..	0 8	3	3 $\frac{1}{2}$ $\frac{1}{2}$
30000 W. Craven Moor, t, Pateley Bridge*.	10 0	0	—
12000 West Crebster, c, Tavistock ..	10 0	6	82 $\frac{1}{2}$ $\frac{1}{2}$
12040 West Devon Consols, c, Oalstock ..	2 0	0	38 $\frac{1}{2}$ $\frac{1}{2}$
10000 West Godolphin, t, c, Breage ..	1 2	6	1 $\frac{1}{2}$ $\frac{1}{2}$
20000 West Liphisburgh, *t, Cardigan ..	1 0	0	1 $\frac{1}{2}$ $\frac{1}{2}$
30000 West Mary Ann, t, Menheniot ..	1 13	0	38 $\frac{1}{2}$ $\frac{1}{2}$
20200 W. Pateley Bridge, t, Yorkshire ..	1 0	0	—
12000 West Phoenix, t, Linkinhorne ..	1 5	0	—
8000 West Polbreme, t, c, St. Agnes ..	0 9	6	36 $\frac{1}{2}$ $\frac{1}{2}$
5190 West Polstide, St. Dayl ..	6 14	0	12 $\frac{1}{2}$ $\frac{1}{2}$
512 West Topigs, c, Redruth ..	102 0	0	12 $\frac{1}{2}$ $\frac{1}{2}$
2048 West Wheal Frances, c, Illogan ..	36 13	8	5 $\frac{1}{2}$ $\frac{1}{2}$
30000 West Wheal Pevor, t, Redruth ..	3 10	6	4 $\frac{1}{2}$ $\frac{1}{2}$
2400 West Wheal Seton, c, Camborne* ..	15 0	0	16 $\frac{1}{2}$ $\frac{1}{2}$
6000 Wheat Agar, c, Illogan ..	16 8	0	16 $\frac{1}{2}$ $\frac{1}{2}$
6144 Wheat Basset, c, Illogan ..	8 9	0	54 $\frac{1}{2}$ $\frac{1}{2}$
4000 Wheat Benny, *c, t, Cornwall ..	5 5	0	5 $\frac{1}{2}$ $\frac{1}{2}$
3000 Wheat Boys, t, Redruth ..	1 3	6	—
50000 Wheat Castle, *c, t, St. Just ..	1 0	0	—
12000 Wheat Coates, t, St. Agnes ..	1 0	0	1 $\frac{1}{2}$ $\frac{1}{2}$ 1 $\frac{1}{2}$
2588 W. Comt., & No. Trees, t, c, Gwennap ..	2 2	0	1 $\frac{1}{2}$ $\frac{1}{2}$
3030 Wheat Britannia, t, c, Gwennap ..	1 0	0	1 $\frac{1}{2}$ $\frac{1}{2}$
50000 Wheat Elizabeth, t, Cornwall ..	1 0	0	—
12288 Wheat Jane, t, Kent ..	2 14	0	—
12000 Wheat Jewell, t, St. Hilary ..	1 0	0	36 $\frac{1}{2}$ $\frac{1}{2}$
25000 Wh. Honey and Tawnydale, s-l, Lisk ..	1 0	0	3 $\frac{1}{2}$ $\frac{1}{2}$
12000 Wheat Lusky, t, Callington ..	0 3	0	34 $\frac{1}{2}$ $\frac{1}{2}$
20000 Wheat Owles, t, St. Just ..	7 3	0	8 $\frac{1}{2}$ $\frac{1}{2}$
30000 Wh. Silver & Langtoes, *s-l, Camelid. ..	1 0	0	1 $\frac{1}{2}$ $\frac{1}{2}$
8000 Wheat Sisters, t, Leant ..	3 15	0	1 $\frac{1}{2}$ $\frac{1}{2}$ 1 $\frac{1}{2}$
4036 Wheat Uay, t, c, Redruth ..	17 13	6	4 $\frac{1}{2}$ $\frac{1}{2}$
60000 Yeoland Consols, t, Devonshire ..	0 12	6	1 $\frac{1}{2}$ $\frac{1}{2}$
4000 Ystwith, *t, Cardigan ..	1 0	0	36 $\frac{1}{2}$ $\frac{1}{2}$

bl, blonde; *c*, copper; *g*, gold; *l*, lead; *s*, silver; *sl*, slate
s-l, silver-lead; *t*, tin; *z*, zinc; *i*, iron; *a*, arsenic.
 *Limited Liability Companies; † quoted on the Stock Exchange

have paid dividends.

GAS COMPANIES

<i>Shares.</i>	<i>Company.</i>	<i>Paid.</i>	<i>Price.</i>
£100 Abbot, John, and Co. [L].....	£ 75 0 00		
5 Altami Colliery Co. [L].....	5 0 00		
100 Ashbury Co. [L] (new).....	90 0 00	30	32½
3 Bagnall, John, and Sons [L]....	3 0 00		
10 Benhar Coal Co. [L].....	10 0 00		
10 Bilbao River & Cantabrian R. Co. [L].....	10 0 00	5	5½
20 Blenkinsop, Vaughan, & Co. [L] A 12	10 0 00	11½	12½
50 Brown, Bailey, and Dixon [L] 40	40 0 00		
100 Brown, John, and Co. [L].....	75 0 00	58½	59
100 Cammell and Co. [L].....	80 0 00	69	69½
20 Cannock & Huntington Coal [L] 10	10 0 00	10½	10
10 Central Swedish Iron & Stl. [L] 10	10 0 00		
50 Charlton Iron Co. [L].....	50 0 00		
50 Chatterley Iron Co. [L].....	50 0 00	6½	7
10 Chillington Iron Co. [L].....	10 0 00	1½	1¾
10 Consett Iron Co. [L].....	7 1 00	2½	2½
1 Consett Spanish Ore [L].....	1 0 00	2	2½
20 Darlington Iron Co. [L].....	18 10 00	2½	3
50 Davy Brothers [L].....	22 10 00	4	4½
22 Ebbs Vale Co. [L].....	20 0 00	7½	8
8 Genl. Mining Ass. [L] (pd.).....	8 0 00	5½	6½
50 Knowles, Andrew, and Co. [L].....	25 0 00	8½	9
20 Lynny and Tondi [L].....	20 0 00	5½	5½
10 Lydney & Wigpool Iron Ore [L] 9½	9 12 00	¾	1½

TRABANTUS

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		BANKS.		
Issue.	Shares.	Pd.	Clos.	pr.
100000 10	Agra [L]	all	9 1/2	10
80000 20	Anglo-Egyptian Banking [L]	all	19 1/2	20
30000 40	Bank of Australasia	all	85	87
12500 20	Bank of British Columbia	all	22 1/2	23
120600 50	Bank of British North America	all	57	59
10000 25	Bank of Egypt	all	28	30
50000 20	Bank of New South Wales	all	63	65
100000 10	Bank of New Zealand	all	26 1/2	27
25000 25	Bank of South Australia	all	41	43
120000 50	Bank of Victoria	25	37	39
40000 20	Chartrd. of Ind., Aust., & China	all	22 1/2	23
30000 25	Ch. Merc. of Ind., Lond., China	all	15	16
20000 100	Colonial	30	68	70
50000 20	English Bk. of Rio de Janeiro [L]	16	13 1/2	14
60000 25	London and River Plate [L]	10	14	1
60000 7	London and San Francisco [L]	all	75	77
150000 20	London Chartered of Australia	all	23 1/2	2
100000 15	National Bank of N. Zealand [L]	31/2	33	35

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TELEGRAPH COMPANIES.					
<i>Shares.</i>		<i>Pd.</i>		<i>Clos.</i>	<i>pr.</i>
59	Stk. Anglo-American	100	0	48½	49 ½
30	10 Brazilian Submarine	10	0	11 ½	12
65	10 Cuba	10	0	10 ½	11
27½	10 Direct Spanish	9	0	5 ½	5 ½
43	20 Direct United States Cable	20	0	12½	12 ½
39	10 Eastern	10	0	10 ½	10 ½
23½	10 East. Exten. Austr. and China	10	0	11 ½	11 ½
6	10 German Union	10	0	9 ½	10 ½
70xd	10 Great Northern of Copenhagen	10	0	12 ½	12 ½
15	25 Indo-European	25	0	32	33
7 ½	10 London Platino Brazilian	10	0	31 ½	9
2 ½					